PLANS FOR SCHOOL IMPROVEMENT

IN VILLAGE AND RURAL COMMUNITIES

MISSOURI

ISSUED BY

State Department of Education

WM. P. EVANS
State Superintendent of Public Schools

PREPARED BY
GEO. W. REAVIS
State Rural School Inspector

JEFFERSON CITY, MISSOURI
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THE HUGH STEPHENS PRINTING COMPANY
JEFFERSON CITY, MO.

BETTER SCHOOLS FOR COUNTRY BOYS AND GIRLS.

That men are created equal is unquestioned; that they remain so is sophistry. The schoolboy "with shining morning face" is at the parting of the ways. If city bred, his school days are spent in costly buildings with modern equipment and under the tuition of experts.

The country lad has none of these, and yet his numbers are greater, while from his sturdy ranks come the men who do great things—command armies, build industries, separate continents.

From the outland, where life throbs strongest, the air is purest, the thoughts cleanest, come these handicapped youths, to engage in the battle of life and win—or lose.

With an improved rural school, he may win; without it—Failure.

I. D. GRAHAM, in Kansas Farmer.

INTRODUCTION.

City children go to the country for the summer, but return to the city in autumn for school. Why should they not go to the country to school? Nature is there and elementary production, ready to elucidate their lessons. There is freedom to shout, play is unimpeded, wholesome, fresh food and pure air and water. With these advantages one might expect children to go to the country for schooling. Alas, the opposite is found, for very many go from the country at a tender age to attend city schools, losing the care of parents and often gaining undesirable habits and associates.

Many communities are finding that unwise economy and its accompanying dreariness are losing to them the best stock in the world, the boys and girls of Missouri. That the trouble is parsimony and not poverty is shown by the fact that in a large part of the State the wealth per teacher is greater in the country than the city. If the rural schools were better, if rural life were more interesting, if more social events came to them, if sports were more encouraged and conditions less hard, many of the youth now leaving the farm would stay.

Rural Missouri has been the sleeping princess and the fairy prince Progress has roused her with a kiss. She is now stretching herself, rubbing her eyes and looking around her. She sees far too many things that have been asleep, and among them are her schools and roads. This pamphlet has been prepared by Mr. Geo. W. Reavis, the State Rural School Inspector, to aid in meeting the newly awakened desire for suitable equipment for the good time dawning for the rural schools.

Missouri has been greatly blessed with food and raiment, but the Book says, "Man shall not live by bread alone." But the "word" must have a setting and the acquisition of an understanding of it must no longer be penalized as now in ugly cheerless, insanitary surroundings. If money and heart are put into the rural schools, they will produce finer returns than the most improved breeds of stock to be found.

Yours truly,

WM. P. EVANS.

Jefferson City, Mo., June 1, 1914.

FOREWORD.

The purpose of this bulletin is to furnish to boards of directors suggestive material and plans which may be of use in the construction and equipment of new school buildings. Suggestions are also given in regard to lighting, heating, ventilating and equipping schoolrooms which are already built, but which do not have any modern conveniences.

It is unfortunate that we have no laws in this State which require that schoolhouses shall be constructed to conform to modern principles of convenience and sanitation, and that they shall also be built with due regard to the artistic effects of grace and beauty, but it is gratifying to know that there is an increasing demand from the people living in rural communities that their schoolhouses shall be made more attractive, comfortable and better adapted for good school work.

Too long the "box-car" type structure has been with us. It should long ago have given way to a substantially built schoolhouse designed and equipped to meet the needs of the children. The education of a community is influenced largely by the architecture and environment of the school. "So much a long communion tends to make us what we are."

The people of many rural communities are well able to have the best of everything pertaining to schools, and they owe it not only to themselves and their children, but a future generation, to see that all items relating to the physical features of their school plant have been given due attention in the light of modern standards.

Every effort should be made on the part of school officers and teachers to meet the requirements of Approval for Rural Schools.

These suggestions, plans and reports of existing conditions are submitted with the hope that they may aid school officers and teachers in the solution of some of the vital problems of school improvement.

Grounds and Site.

Much care should be exercised in the selection of a schoolhouse site. All sites should be on a slight elevation, and convenient of approach either from a road or street. Too often they are chosen to please some faction in the district and wholly without regard to their adaptability to school purposes. The motive which should guide a community in the selection of the site for a schoolhouse is the influence which it will have on the lives of the children for good or evil. The house should not be located near swampy ground, a body of stagnant water, a cemetery, a slaughterhouse, a feed lot, or any place having a depressing influence upon the minds of the children. Since it is true that few rural schools in this State have an ideal location at present, and possibly the majority of them will continue to remain where they are for a long time to come, the wise thing to do is to make the present site as sanitary and inviting as possible.

The grounds should be well drained, cement walks laid and trees and vines and shrubbery planted where needed. It is not necessary that one have a technical knowledge of landscape gardening before any steps are taken toward beautifying the grounds. The pupils of the school will be interested in making these improvements. A live teacher can direct this work and in a short time the school yard may be transformed from an ugly barren place to one of the neatest spots in the community. Many valuable lessons in soil fertility, tree planting and fertilizing will be learned in addition to the wholesome influence this improved condition will have upon the entire neighborhood. The grounds should contain not less than two acres and this will furnish opportunity to have a school garden and a roomy playground. The law now requires that elementary agriculture be taught in the rural schools, and it is necessary that an experimental plot be laid out where observations may be made on growing plants.

In consolidated districts the law very wisely provides that before State aid can be secured for building the board must purchase at least five acres of ground, a part of which must be used for experimental plots in teaching agriculture.

There should be provision made to house the teams and horses used in conveying pupils from a distance to the consolidated school.

Building Plans.

The first step to consider in the erection of a new building is the probable number of children to be accommodated. This determined, the next step is a consideration of the financial ability of the district. Every district should decide to make use of the best materials and plans it can afford. The third step, and the one which should be considered well, is the architectural design. The box-car type should have no place in mind or fact. It is suggested that school boards employ a competent architect to work out the plans best suited to the local community. When this is not possible, the following plans are presented with a view of assisting the local carpenters or contractors. These plans embody the modern ideas of schoolroom construction.

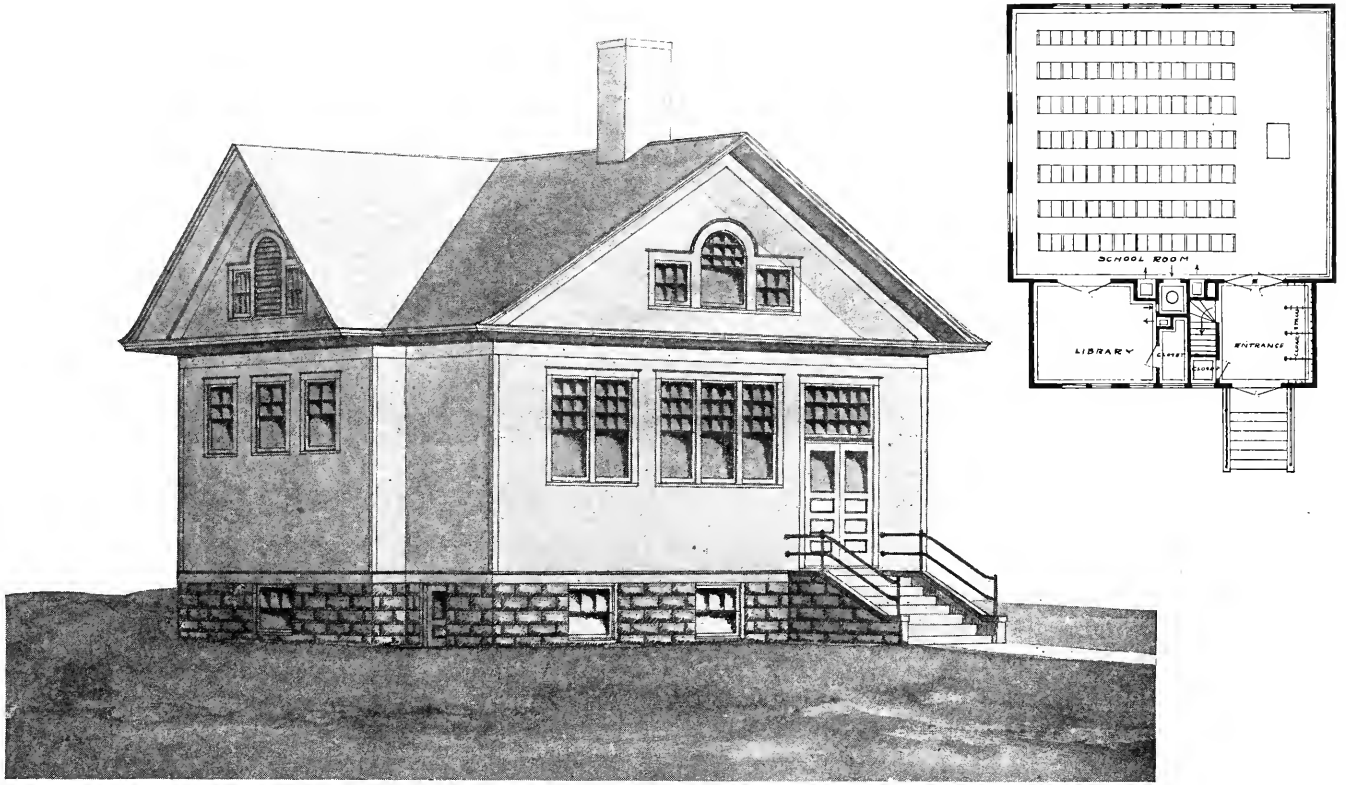
Experience has taught that certain standards in arrangement and plan should be complied with in order to meet the demands for the natural growth and development of the child; for example, the method of admitting light to the room, the size of the room, its height and shape. Certain limitations in these matters have been prescribed by the best authorities on school architecture and should be carefully observed by those entrusted with the erection of new school buildings. The room should not be more than thirty-two feet long nor more than twenty-four feet wide. The reason for these limitations is the protection of the eyes of the pupils engaged in regular classroom work. The room should be thirteen or fourteen feet high. This size will be ample to seat fifty pupils, allowing fifteen square feet of floor space for each pupil. Only single desks should be used.

The light should be admitted from the left side through windows placed close together to prevent unnecessary shadows. They should not be nearer than five or six feet to the front wall, and should extend well up to the ceiling line.

Foundation walls should be of concrete or stone. All outside steps, walks or platforms should be of concrete. Floors should be double, the under floor laid diagonally across the joists. The floors of a schoolroom should, each summer, be scrubbed until thoroughly clean, allowed to dry and oiled with boiled linseed oil applied hot. This oil can be applied with an ordinary floor mop. Apply as much oil as the wood will absorb. This fills all the pores of the wood, and hardens the wood and greatly lengthens the durability of the floor. After the floor has been treated thus, use a sweeping com-

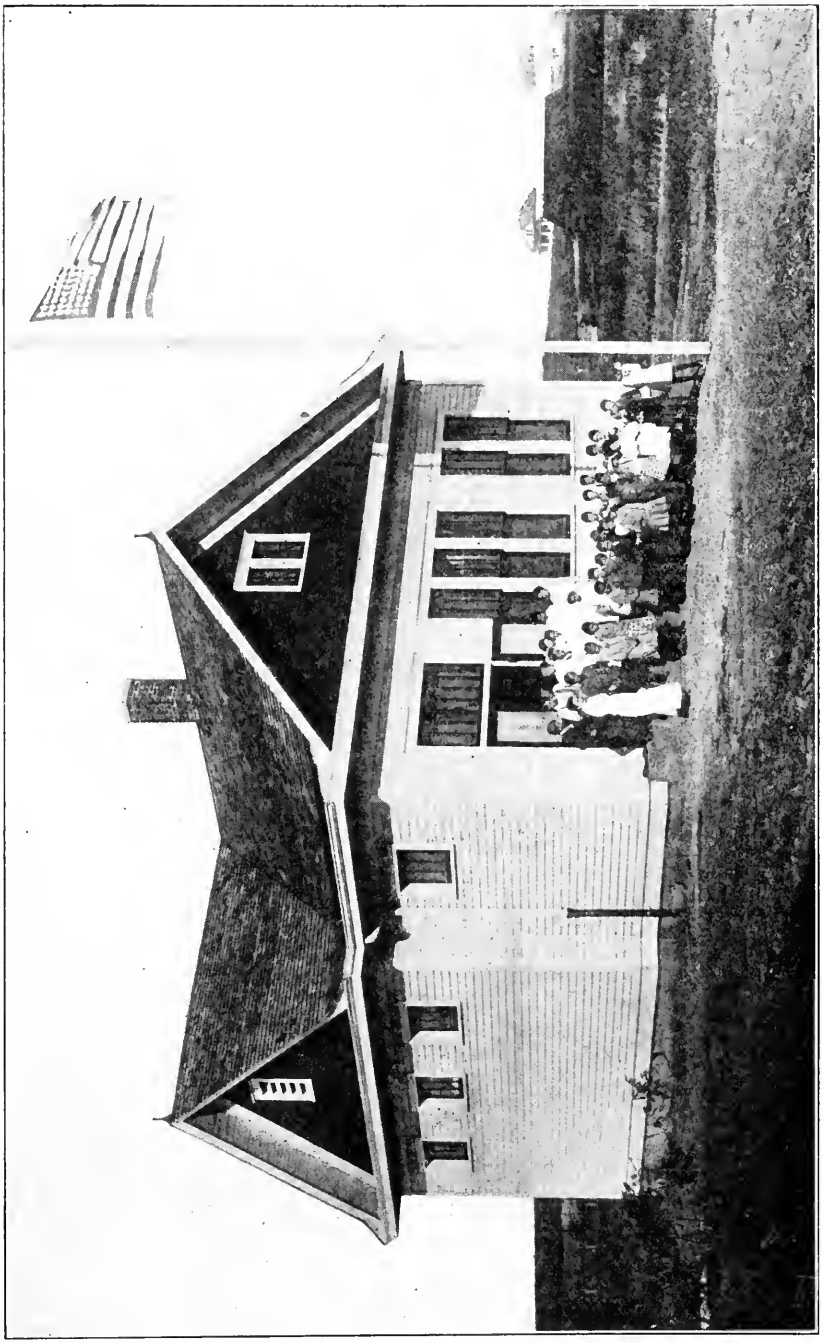
pound and there will be little trouble with dust. Instead of the above floor treatment, some school boards varnish their floors with a heavy coat of hardwood varnish. This is probably the best floor treatment. Such a floor can often be wiped with a damp cloth, and can be cleaned with a brush as easily as a tile or cement floor. The floor varnish must be renewed every two or three years. Real slate blackboards are the best and most economical in the end.

A cloth, dampened with a little kerosene oil, should be used to wipe the furniture. *Never use a feather duster—this only scatters germs.*



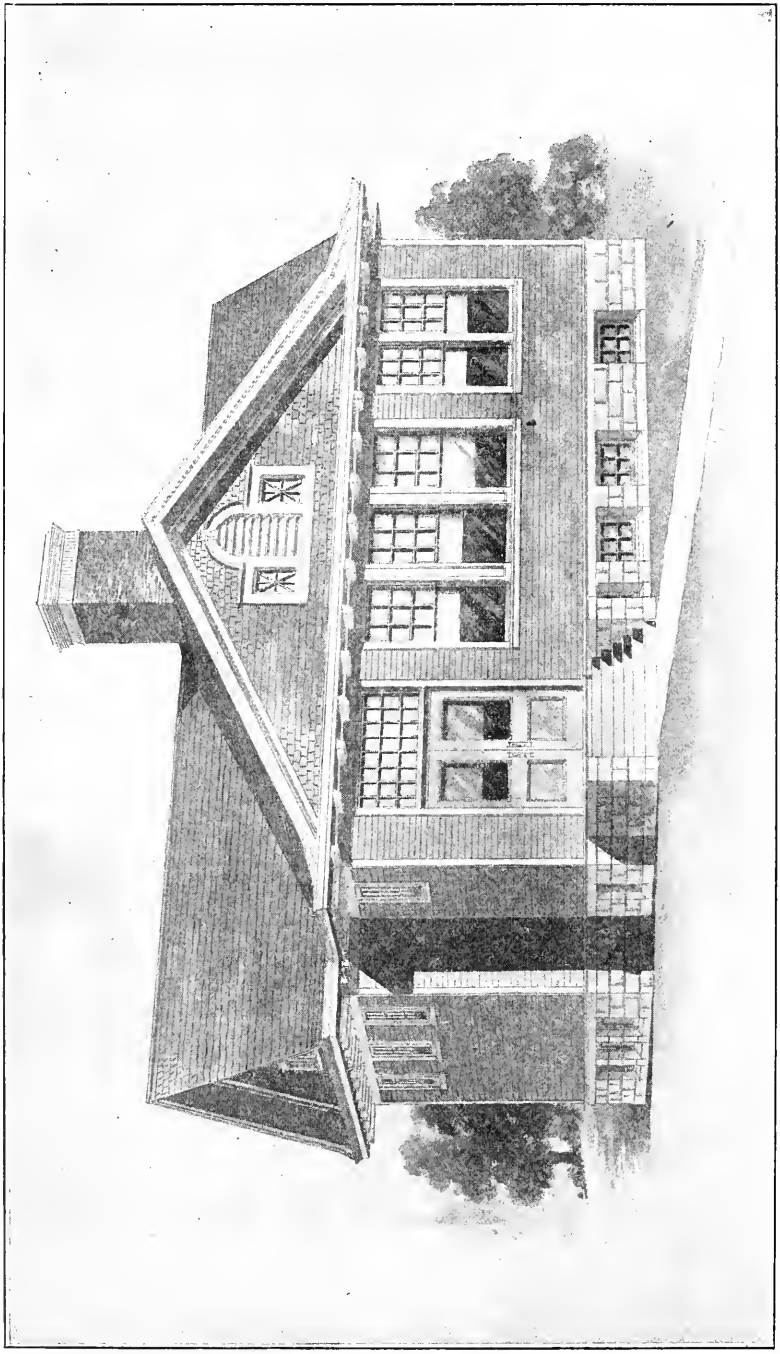
KICKAPOO RURAL SCHOOL, GREENE COUNTY.

Plate II.



NASHUA RURAL SCHOOL, CLAY COUNTY.

Plate I.



FELT'S ONE-ROOM SCHOOL.

Plate II.

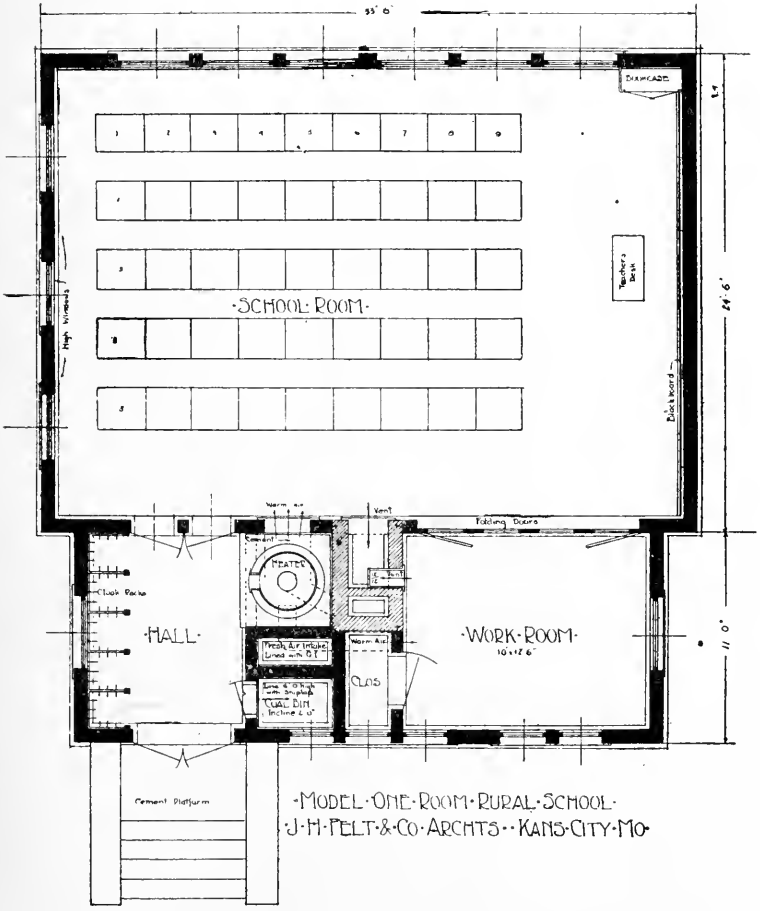


Plate I shows the perspective and Plate II the floor plan of a one-room rural school. These plans show the essential features of a modern school building.

The heating apparatus is so designed that the heater may be fired from the hall, thus doing away with the necessity of carrying fuel into the schoolroom, and doing away with the dirt and noise which comes from coal and from firing a furnace.

The building is ventilated through a large vent stack carried out above the roof. The building is lighted from the left of the pupils.

The workroom adjacent to the schoolroom can be used for many purposes, but is designed particularly for use as a manual training room or a domestic science room. It has a large closet adjoining, and is well lighted.

This building can be erected at a cost of from $1,200 to $2,000, depending upon the materials used. This moderate cost places the building within the reach of any country school district.

Plate V.

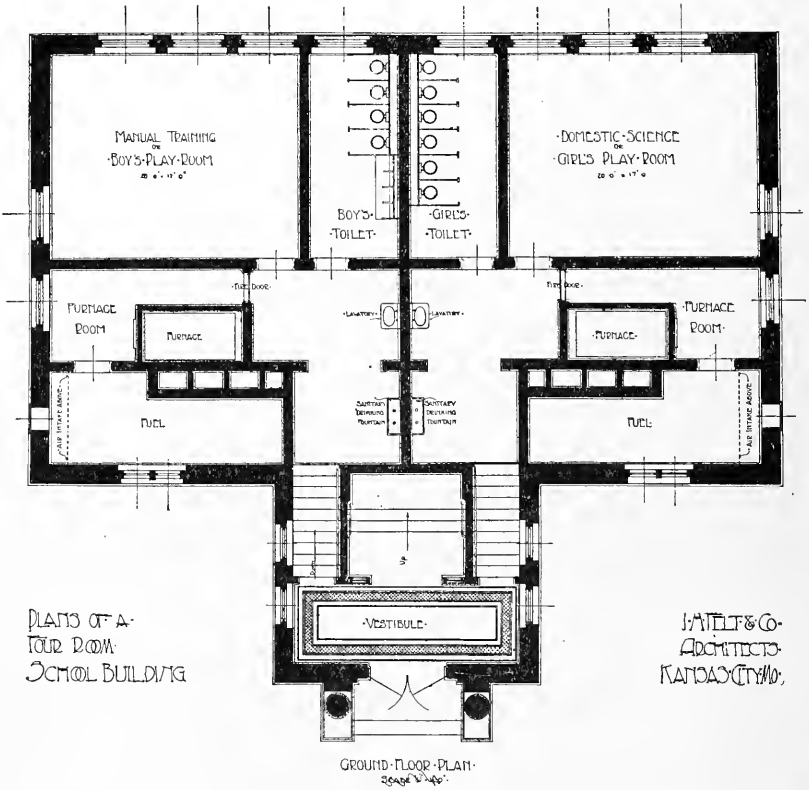


Plate V shows the basement plan and Plates VI and VII the perspective and floor plans of a four-room school building, suitable for a consolidated school or a village school.

From the exterior of the building it will be seen that it sets well out of the ground, and the basement floor plan shows that every inch of available space in the basement is used.

The basement has the boys' and girls' toilet rooms which are separated by a brick wall and each reached by a separate and independent stairway. The sanitary drinking fountains and lavatories are so placed that pupils can get a drink without going to the toilet rooms. The lavatories and toilet rooms are well lighted.

The lighting of the schoolrooms is perfect, being unilateral, or one-side lighting, the light all being brought from the left of the pupils, the windows setting well up to the ceiling line.

The second floor is so planned that the two rooms can be thrown together, making an auditorium.

This building can be erected at a cost of from $7,000 to $12,000.

The school buildings in Consolidated District No. I in Barry county and Consolidated District No. II in Greene county are very similar to this plan.

Plate VI.

FRONT ELEVATION, FELT'S FOUR-ROOM SCHOOL.

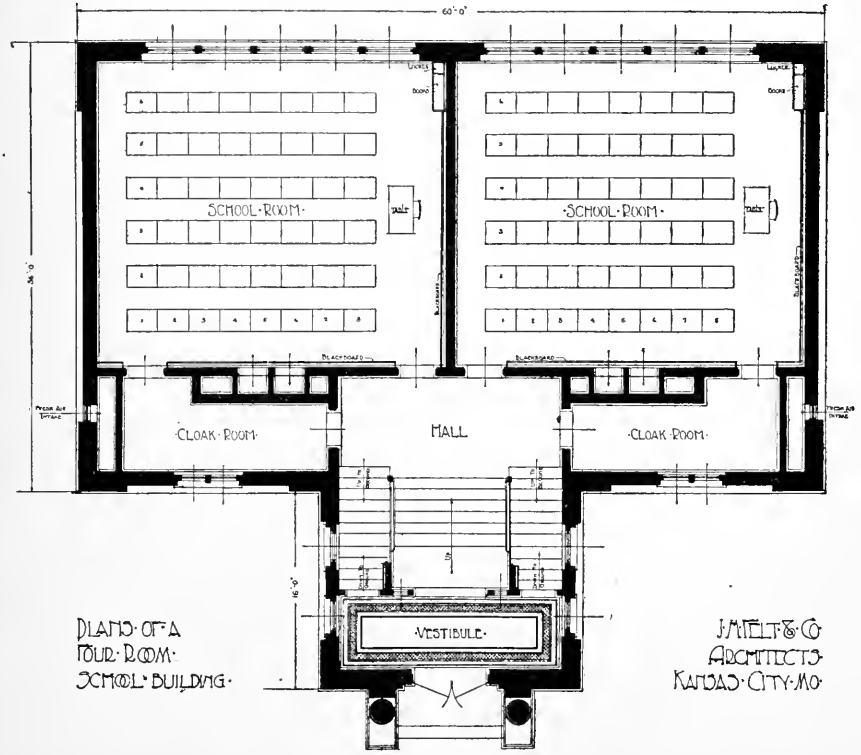
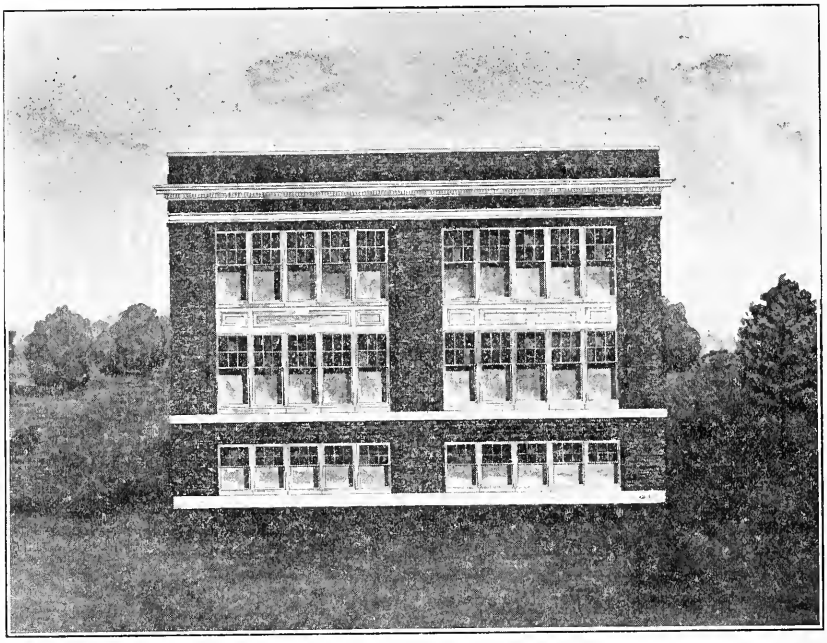
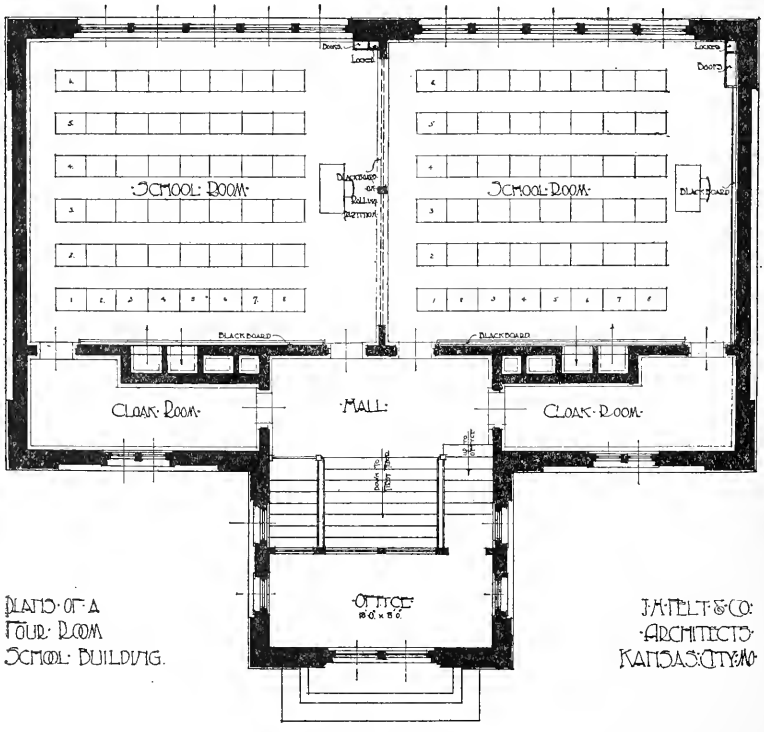


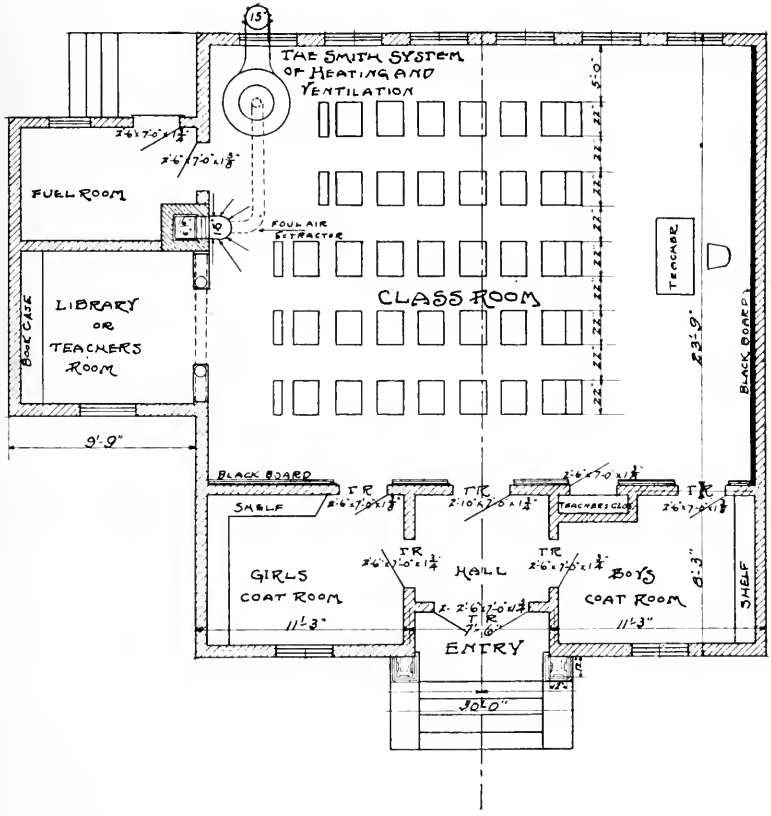
Plate VII.



REAR ELEVATION, FELT'S FOUR-ROOM SCHOOL.

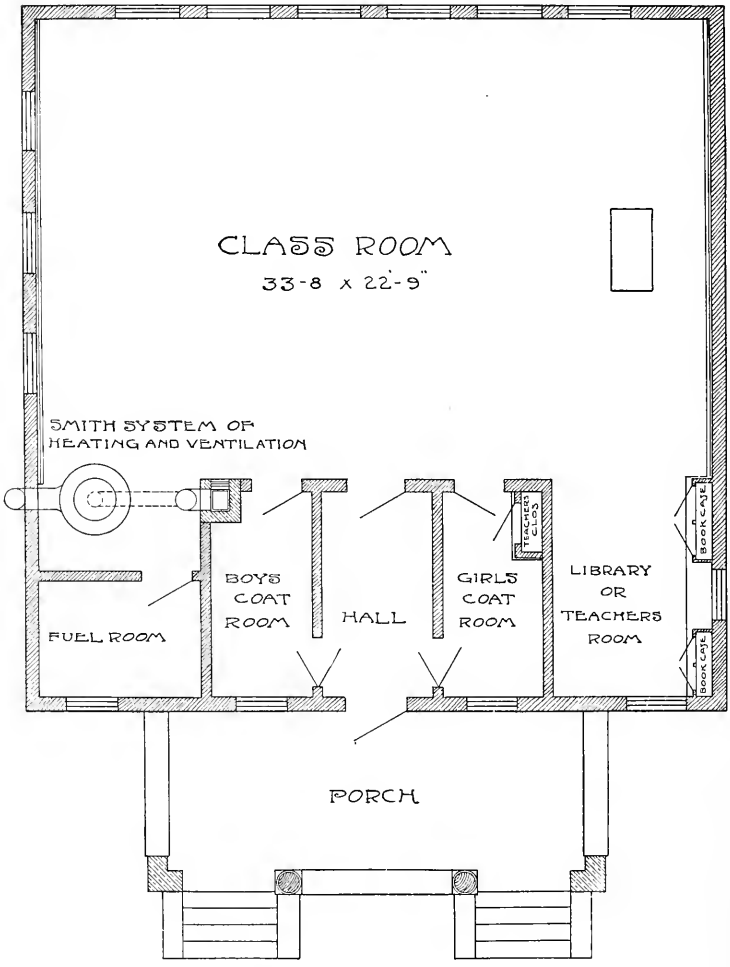


SECOND FLOOR PLAN.



FLOOR PLAN NO. 1.

Courtesy Smith Heating Co., Minneapolis, Minn., who will furnish blue prints of above plan.



FLOOR PLAN NO. 2.

Courtesy Smith Heating Co., Minneapolis, Minn., who will furnish blue prints of the above plan.

MAPLEWOOD SCHOOL BUILDING, PETTIS COUNTY.

The Maplewood school, Pettis county, is an approved school with furnace heat and playroom in basement. Edna L. Vaughan is the teacher. She has been in her present position forty-eight months and receives fifty-five dollars per month. The library contains 110 volumes valued at eighty dollars and the assessed valuation of the district is $93,900 and the school property is valued at $2,300. There should be several hundred modern buildings similar to this one in our State.

By T. W. Bast.

Maplewood school is a frame building. The foundation and basement walls are made of concrete. The basement is practically the same size as the schoolroom above, with ample space for furnace and fuel.

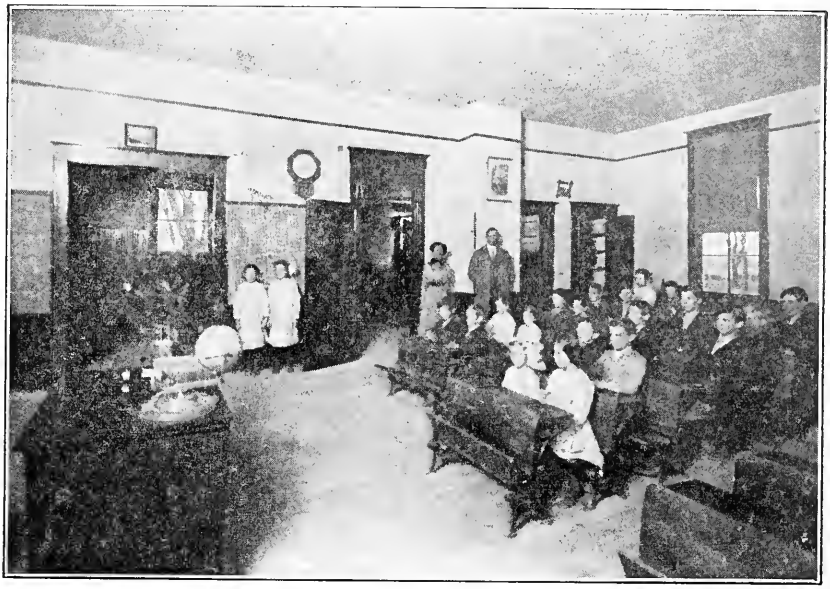
The schoolroom is 23x31 feet, lighted with windows on two sides. I would prefer to have the light entirely from one side.

The ventilation is as perfect as can be arranged in a building of this class.

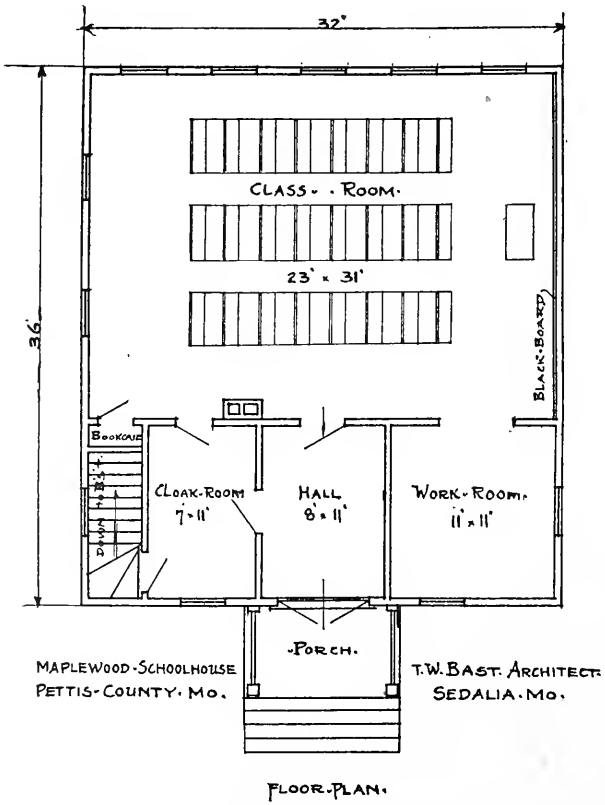
The schoolroom has slate blackboards four feet in height above the wainscoting around the entire room.*

There are cloak and workrooms directly connected with the schoolroom in addition to the main hallway. This building cost approximately $2,000 and is considered one of the best rural school buildings in the State.

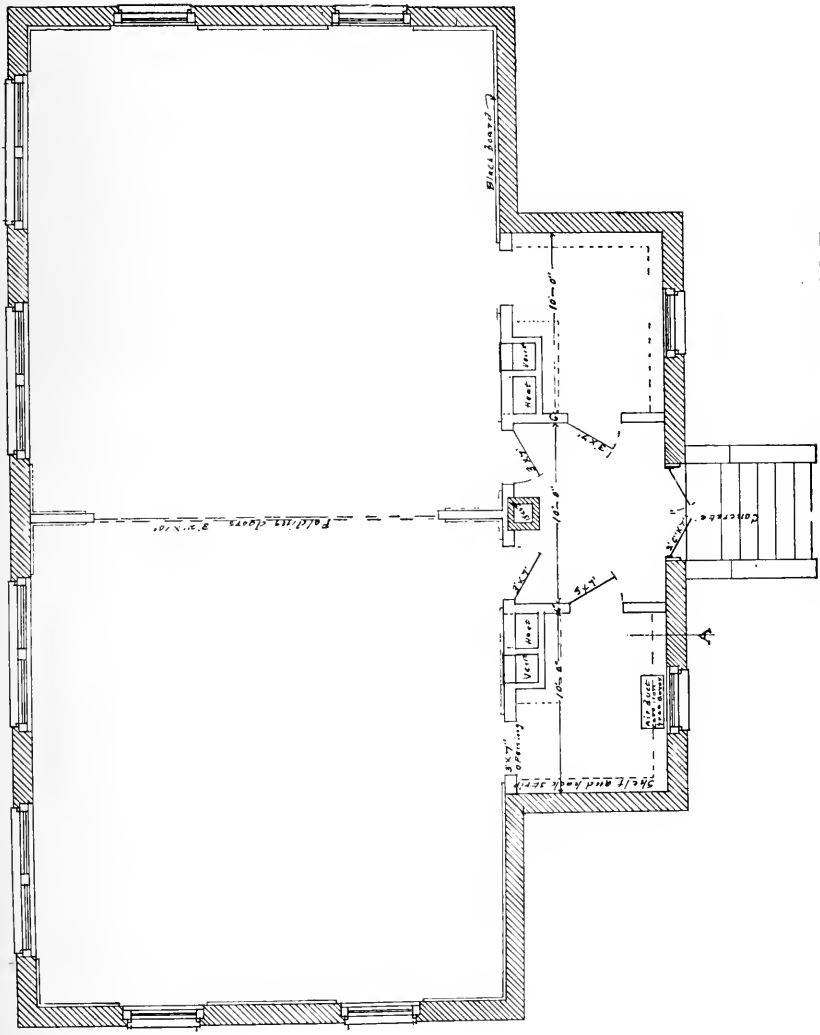
*Part of the blackboards should be lower for the use of the small children.—Ed.



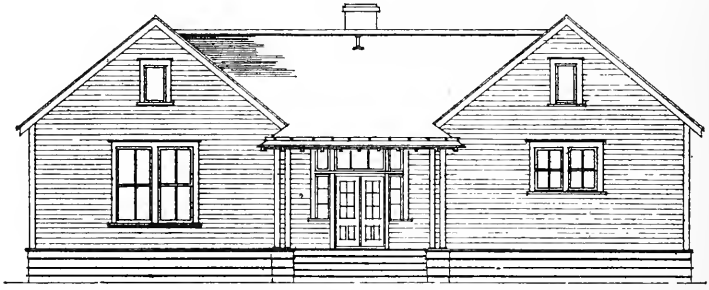
MAPLEWOOD SCHOOL IN SESSION.



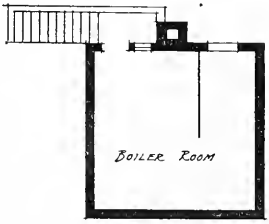
FLOOR PLAN OF MAPLEWOOD SCHOOL BUILDING, PETTIS COUNTY.

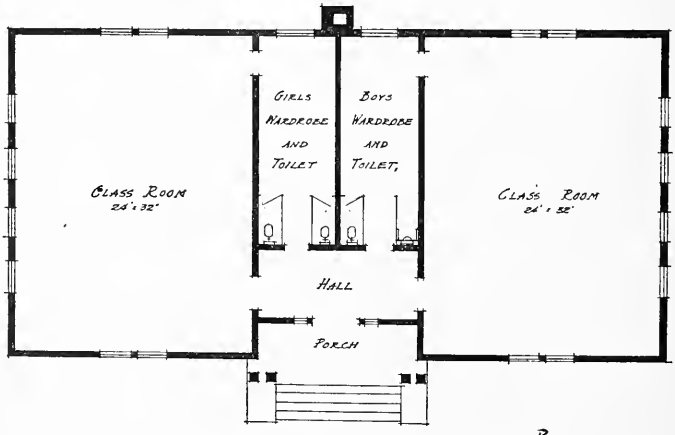


PLAN OF OAK GROVE SCHOOL, GREENE COUNTY.



FRONT ELEVATION

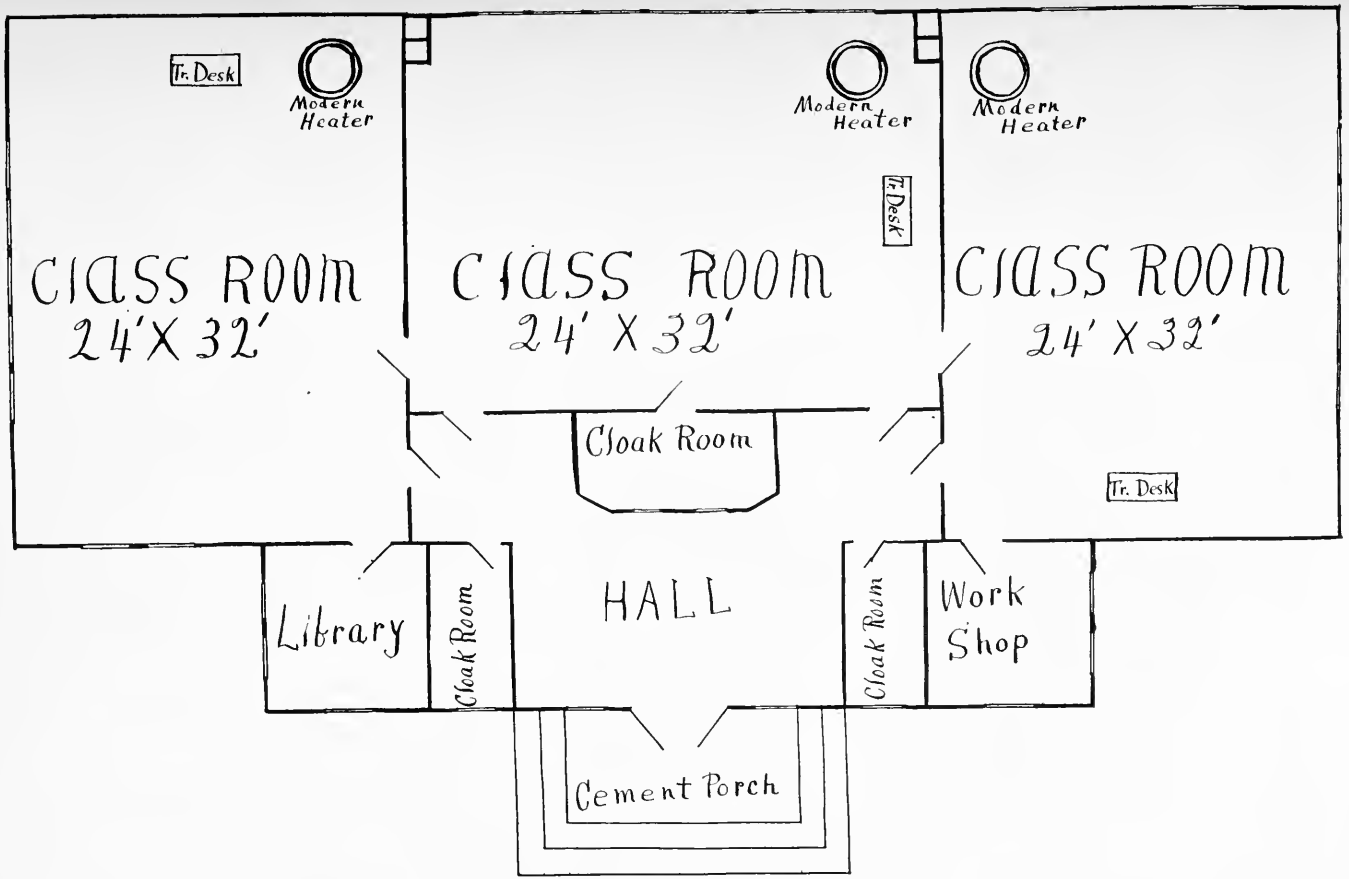




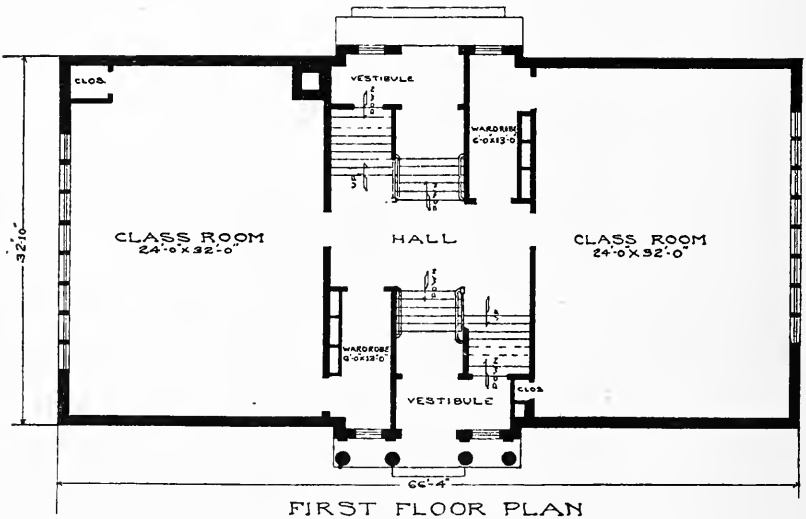
PLAN

Wm B. Ittner architect.

PLAN FOR A
TWO ROOM SCHOOL
SCALE 10 FEET
UNIVERSITY CITY
ST. LOUIS CO.



FLOOR PLAN FOR A THREE-ROOM SCHOOL BUILDING.

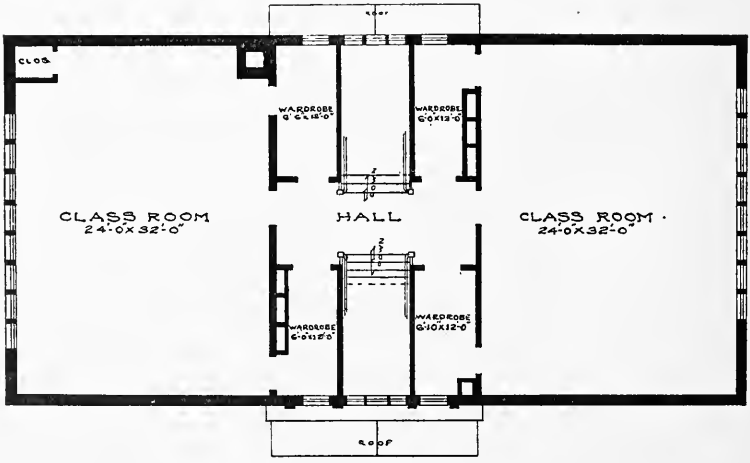


FIRST FLOOR PLAN

SKETCHES FOR A FOUR-ROOM SCHOOL BUILDING

CHARLTON & KUENZLI — ARCHITECTS
MARQUETTE MICH & MILWAUKEE, WIS

DRAWING NO 6730 N



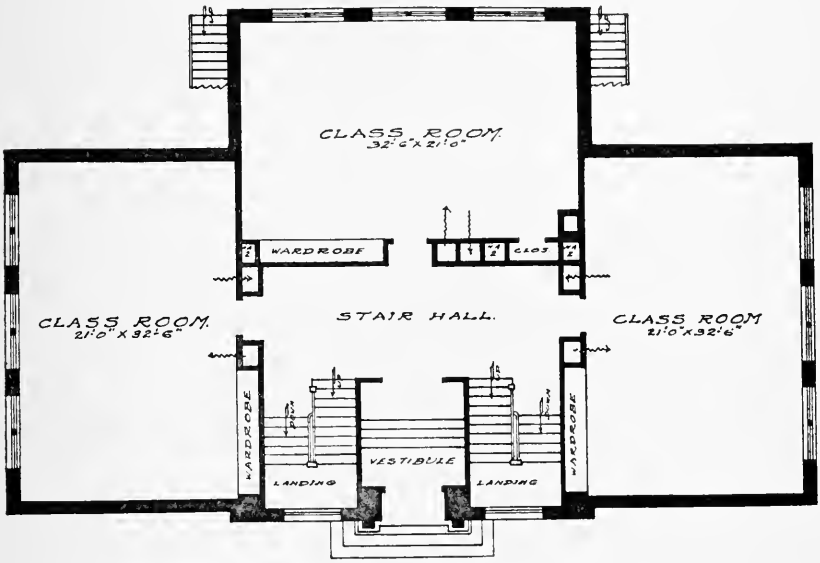
SECOND FLOOR PLAN.

SKETCHES FOR A FOUR-ROOM SCHOOL BUILDING.

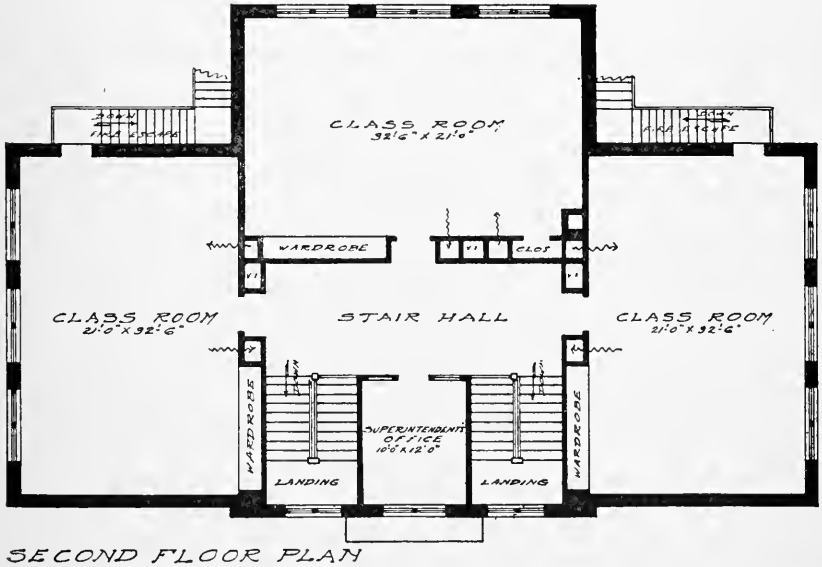
CHARLTON & KUENZLI — ARCHITECTS.
MARQUETTE MICH & MILWAUKEE, WIS

DRAWING NO 6731 N.

Courtesy State Department of Education, Michigan.

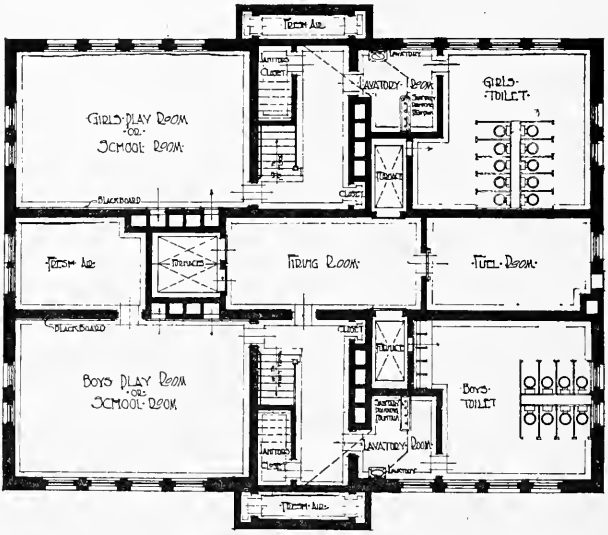


FIRST FLOOR PLAN

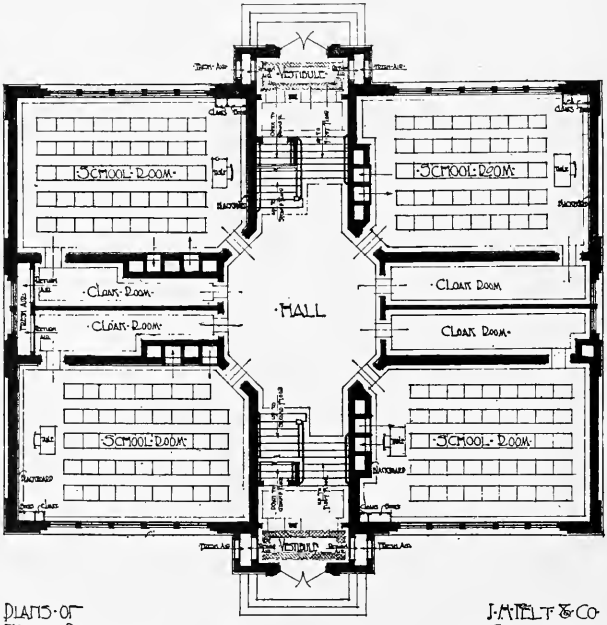


SECOND FLOOR PLAN

Courtesy State Department of Education, Michigan.

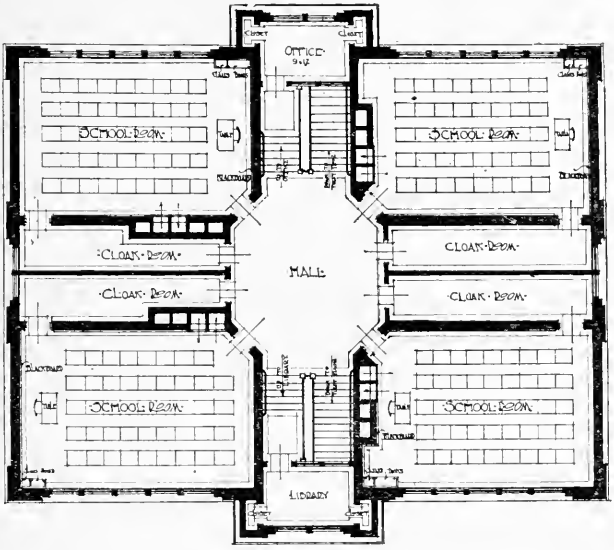


PLANS OF EIGHT ROOM SCHOOL BUILDING — GROUND FLOOR PLAN — J.M. TELT & CO. ARCHITECTS KANSAS CITY MO.

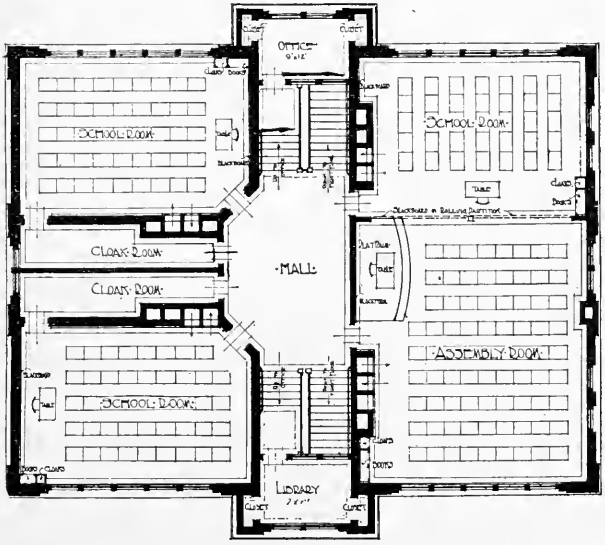


PLANS OF EIGHT ROOM SCHOOL BUILDING — FIRST FLOOR PLAN — J.M. TELT & CO. ARCHITECTS KANSAS CITY MO.

AN EIGHT-ROOM PLAN.



PLANS OF EIGHT ROOM SCHOOL BUILDING · SECOND FLOOR PLAN · J.M. FELT & CO. ARCHITECTS, KANSAS CITY, MO.



PLANS OF EIGHT ROOM SCHOOL BUILDING · ALTERNATE · SECOND FLOOR PLAN · J.M. FELT & CO. ARCHITECTS, KANSAS CITY, MO.

AN EIGHT-ROOM PLAN.

Consolidated Schools.

About fifty consolidated school districts have been formed under the Buford law of 1913, and several of these have erected new buildings in compliance with the law and have received State aid for building. Section 7 of this law says: "Whenever a district organized under the provisions of this act has secured a site of not less than five acres for the central high school building of said district and has erected thereon a school building, suitable for a central school and containing one large assembly room for the meeting of the citizens of the district and has installed a modern system of heating and ventilating, the State shall pay one-fourth the cost of said building and equipment, provided the amount thus paid by the State shall not exceed two thousand dollars ($2,000) for any one district. The State of Missouri shall, out of the general revenue fund of the State, make adequate appropriation for carrying out the provisions of this section, and the money due any district shall be remitted by the auditor to the county treasurer of the proper county on receipt of a certificate from the State Superintendent of Public Schools stating that the conditions herein prescribed have been complied with." There are four important conditions to be met:

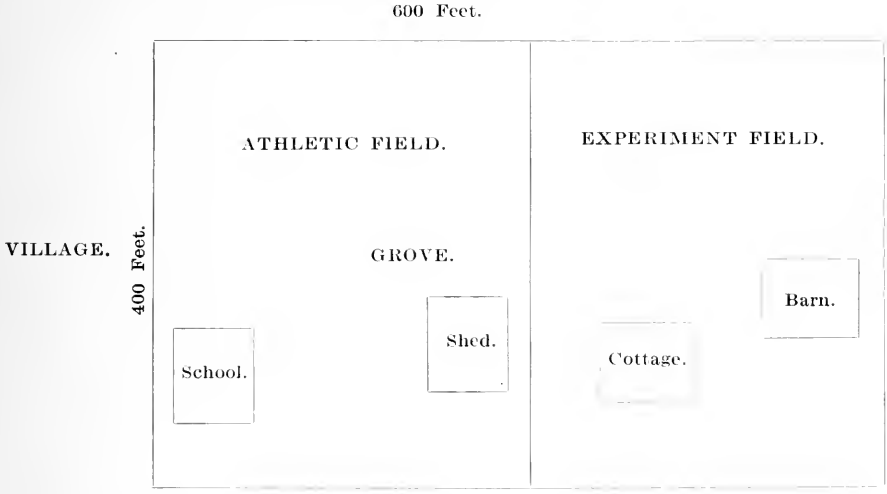
1. The site must contain five acres.
2. The building must have an assembly room.
3. A modern system of heating and ventilating must be installed.
4. The building must be suitable for a central school.

The minimum requirement for the assembly room is 1,400 square feet of floor space, or two ordinary schoolrooms, separated with folding doors which may be opened when occasion demands. (The seats in both rooms must face the same way.)

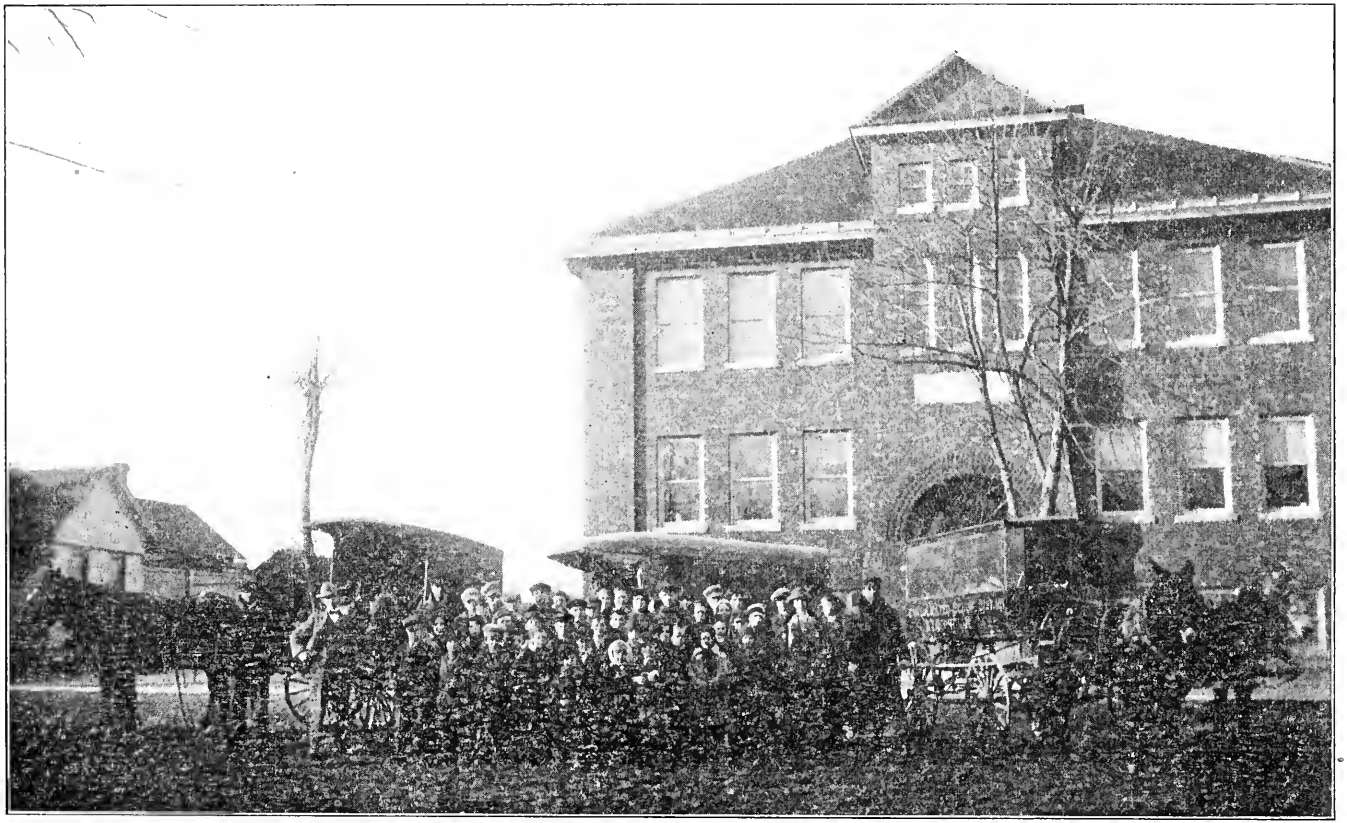
The Felt four-room building, with a rolling partition between the two rooms on the second floor, makes an ideal plan for a small school. There must be installed a system of heating which provides for an even distribution of warm air and a fresh air intake and a foul air extractor which is so arranged as to give good results.

The State Superintendent is given authority to pass on these conditions, and when found satisfactory the State aid will be released. For a fuller discussion on consolidated schools see the 64th Annual Report of the Public Schools of Missouri, pages 79-84. The following arrangement of a five-acre school campus is taken from this report.

CONSOLIDATED SCHOOL PLOT.

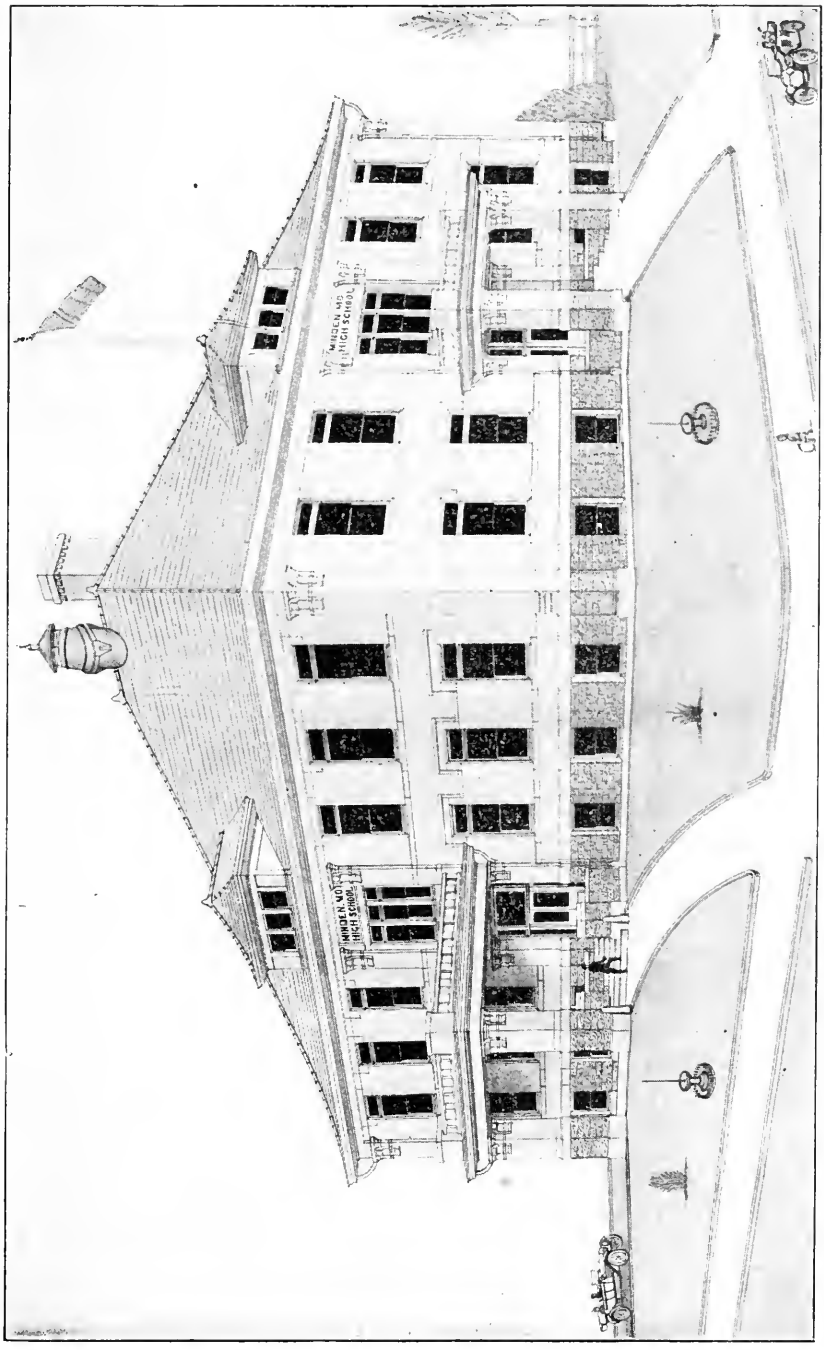


The State requires that consolidated schools shall have an auditorium for a community center and a five-acre tract for a school site if aid is sought, and that the building shall meet certain hygienic requirements. The arrangement of the grounds for the best use is a matter of some interest and the above cut is offered as a solution of the problem. It contemplates a piece of ground 400 feet by 600 feet and the location of the school near the main road or the village on one corner with the athletic field in the adjacent corner. About the building, but not too near to obstruct the light, should be a grove for the neighborhood picnics. The back portion will be the agricultural plot where eventually the cottage for the principal will be built. A shed should be placed in the grove for the horses of the children riding or driving to school or for the hacks used to transport the children.



TRANSPORTATION AT WYACONDA, CLARK COUNTY, MO.

In Consolidated District No. 1 in Clark county, the three small rural schools have been been discontinued and all the children are transported to the central school. The first completely consolidated school in Missouri.



CENTRAL SCHOOL BUILDING IN CONSOLIDATED DISTRICT NO. 1, BARTON COUNTY, MISSOURI (MINDEN). COST, $20,000.

School Equipment.

DESKS.

One of the means of physical torture in the schoolroom is the desk which is too high or too low for the pupil and the seat of the same type. No excuse exists for forcing or even permitting a pupil to sit in a seat so high that his feet cannot touch the floor, or to use a desk of a different size from the seat.

School boards and teachers have participated in this process of physical torture for a long time and in far too many cases are continuing to do so. The remedy is simple; it is high time it should be applied. Each pupil should have a single seat and desk which exactly fits his stature. These should be arranged in rows with all seats of the same size in the same row. Ample space for aisles should be left between each row of seats. The idea that all the large pupils should be seated in the rear of the room and have the sizes taper toward the front where the small pupils are seated is archaic and should be tolerated no longer by sane people. Schoolrooms having seats arranged in this fashion should not be permitted to exist, but the seats should immediately be properly arranged. *Never purchase double seats. Always get single seats.* If funds permit adjustable desks should be purchased. Many of the best schools are now seating their rooms with adjustable desks or with movable chairs and tables. When adjustable chairs and desks are used the pupils can be made more comfortable. Movable chairs and tables make possible the use of the schoolroom for community gatherings. The small chairs and desks may be pushed to one side and camp chairs or other movable seats supplied for these community gatherings. A suitable desk and comfortable chair should be provided for the teacher. Since the teacher is required to keep a record of the attendance upon which the public school funds are apportioned, it is important that his desk be provided with drawers which may be locked in which all records and other valuables, such as reports, may be securely kept.

Much depends upon the arrangement of the furniture and seats and these should be so placed as to provide health, comfort, convenience and good taste. The best efforts of the pupils will be obtained only when their indoor environment meets these requirements.

HEATING AND VENTILATION.

It is quite unfortunate in our State that we have no well-defined laws which provide for the establishment of adequate systems of heating and ventilation for our rural schools.

The following regulations pertaining to this subject have been prescribed by the Indiana State Board of Health for that state, and by court decisions these regulations have the full force of law. Certainly Missouri should have similar regulations and no school should be without an adequate system of heating and ventilating:

WHAT THE MODERN SYSTEM OF HEATING AND VENTILATION DOES WHEN INSTALLED IN A SCHOOLROOM.

First—Supplies large volumes of fresh air rich in oxygen, and thoroughly warms and distributes this air over the entire room.

Second—Removes from the room an equal volume of air which has been depleted of its life-sustaining element and has become poisoned by large quantities of carbonic acid gas, and organic impurities. In short, completely renews the air of the room from five to eight times per hour.

Third—Does away with window ventilation, which is almost as great an evil as impure air, admitting as it does cold drafts to the schoolroom, causing colds, coughs, and kindred ailments.

Fourth—Maintains a uniform temperature all over the room.

Fifth—Absolutely eliminates the cold floor problem and "dreaded hot stove."

Sixth—Adds 25 per cent to the seating capacity by removing the plant to the corner of the room; changes unsightly heater to a heating plant of pleasing design.

Seventh—Reduces amount of district's fuel bill by utilizing the heat that is usually wasted in overheating the upper portion of the room and that part immediately surrounding the stove.

Eighth—Saves the people of the district many times the cost of the plant in doctor bills, to say nothing of the many days' absence on account of illness.

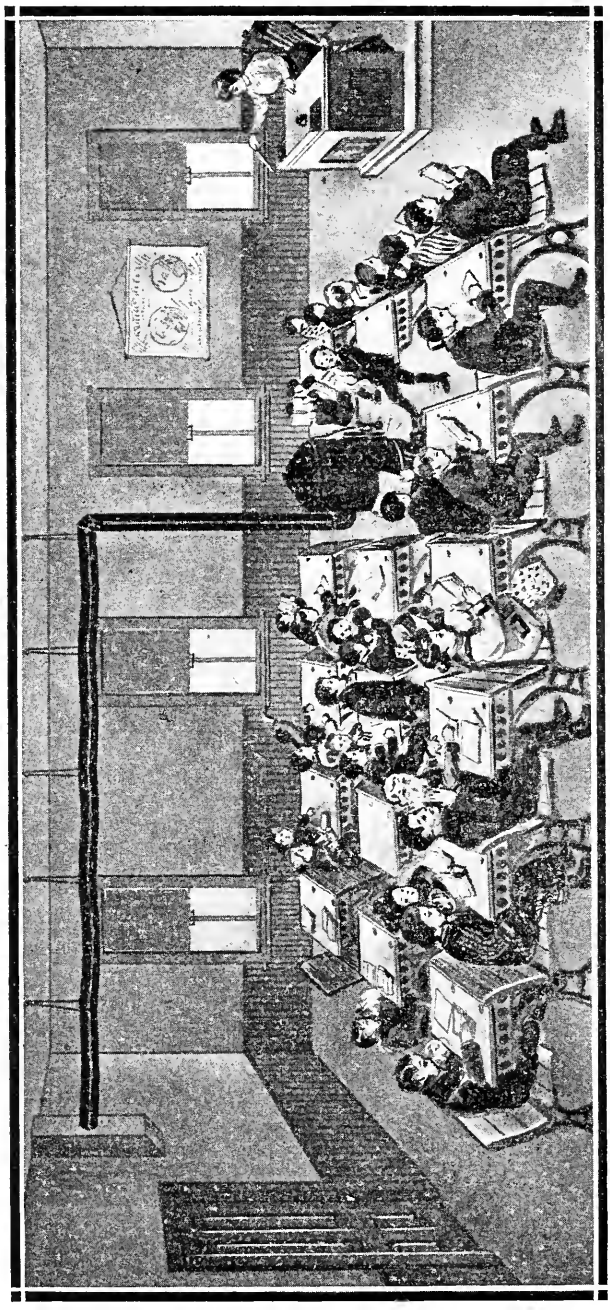
Ninth—Adds 25 per cent to the efficiency of the school because of the better work accomplished under improved conditions.

Tenth—The whole apparatus is under the direct supervision of the teachers, who can attend to it without leaving the room.

"Heating and ventilating systems of all kinds shall take fresh aid from outside the school building, evenly diffuse the same through the schoolroom during school session, and withdraw foul air from said schoolroom at a minimum rate of 1,800 cubic feet per hour for each 225 cubic feet of said schoolroom space, regardless of outside atmospheric conditions. The State Board will test the efficiency of ventilating systems in school buildings as follows: With jacketed heaters and gravity systems, the anemometer test shall be made over the foul air vents in the classrooms. With plenum systems, the anemometer test shall be made over the fresh air inlet of the fresh air room and the fresh air inlet in the classrooms.

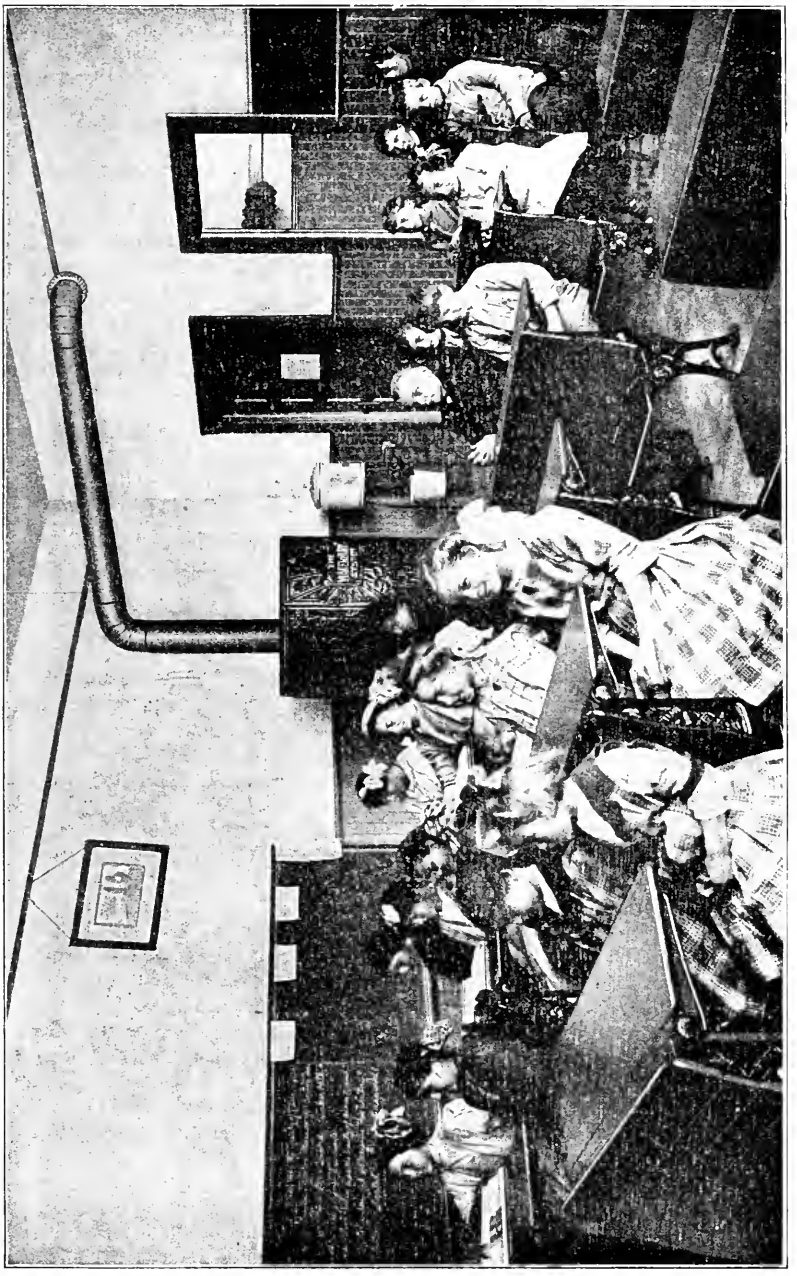
In every test five readings shall be taken, one near each corner and one at the center of the air opening to be tested. A deduction of 5 per cent shall be made for a grill in the air opening.

All tests shall be based upon the seating capacity of classrooms at 225 cubic feet of space per pupil. Before such test shall be made by the State Board of Health the heating contractor shall be given notice of the time when such test is to be made. The State Board of Health will make such tests upon the written request of the trustees, school boards, school commissioners, county or city, or State Superintendents, or upon petition of ten or more patrons of the school."



ANY STOVE-HEATED SCHOOL, 9:30 A. M.
BEFORE.

Courtesy of Smith System Heating Co., Minneapolis, Minn.



AFTER.
Courtesy of Waterbury System Heating Co., Minneapolis, Minn.

STOVES AND HEATERS.

"In small buildings, where furnaces or steam heat with fresh air from outside the building is impracticable, stoves or floor furnaces of suitable size and construction, surrounded by heat proof metal jacket with open top, with fresh air intake from outside the building and foul air flue, shall be installed. The heater shall be of sufficient capacity to uniformly heat the room to 70° Fahrenheit in zero weather."

JACKETS.

"The jacket shall be made of heavy galvanized iron, black iron, or other material equally durable, and shall be lined with sheet asbestos. There shall be an inner jacket of tin or other metal equally efficient, with air space of not less than ¾ inch between the jackets. The jacket shall stand not less than three inches from the stove or floor furnace, and shall extend to tray, floor shield or other foundation upon which the heater rests. The lower 12 inches of the jacket may have sliding doors or hinged doors opening on the inside in order to permit the re-circulation of air when such re-circulation may be necessary in order to heat the room more quickly. Such doors shall be closed at all times when the school is in actual session, but may be opened in the morning before school, or at intermissions if necessary to properly heat the room."

SMOKE PIPE.

"No smoke-pipe connection between the heater and the smoke flue shall be more than 5 feet long, measuring horizontally.

No metal, tile, or other smoke pipe shall extend through the walls, ceiling, or roof in any manner, except as prescribed in these rules.

CHIMNEY AND VENTILATING FLUE.

Each room in which a heater is installed shall be provided with a masonry stack with single flue for smoke and foul air, or with separate flues for the same. Double-flue chimneys shall not be used unless the same are entirely within the building, with no wall exposed to the outside. Double-flue chimneys shall be built of masonry with one compartment for smoke and one for ventilation, with the dividing wall not more than 4 inches, and with the inside of all walls plumb true and finished to a smooth finish.

In lieu of a dividing wall a metal stack of not less than 16 inches gauge, non-corroding metal, or stack of glazed tile of not less than 1 inch thickness, may be constructed within the masonry chimney. Such stack may be used for smoke, shall rest on the foundation of the chimney for support, shall be held in place by metal side braces, and the smoke shall enter such stack at the usual smoke-pipe height.

Where the same flue is used for both smoke and foul air, a suitable drum or mixing chamber shall be used for bringing the smoke and foul air together, in order to insure proper draft in both foul-air flue, or pipe, and in smoke pipe. In no case shall the free area through the mixing chamber or in the space surrounding the smoke pipe in the drum be less than the cross-sectional area of the flue. The foul air may be taken out through a metal pipe extending from within 6 inches of the floor and connected with the smoke pipe through the drum before entering the flue, or may be taken directly through a register or registers in the base of the flue. The bottom of register faces shall be at the floor level, and the free area of register, after deducting 5 per cent for grill, shall equal the cross-sectional area of the flue. Where the chimney projects into the room, registers may be placed on two sides in order to reduce the height of the registers. Clean-outs, accessible from the room, shall be provided for all flues and drums. A suitable damper with operating device in plain view and easily accessible from the room shall be provided so that vent flues can be shut off when not in use.

LOCATION OF CHIMNEYS AND HEATERS.

Wherever possible the heater and chimney shall be located at the same end of the room as the entrance door.

In buildings of more than one room, when the same flue is used for both smoke and foul air, each room shall be provided with a separate chimney. When separate compartments for smoke and foul air are used, each room shall be provided with separate vent flue, but the same smoke flue may be used to accommodate not more than two rooms, and such flue shall have a cross-sectional area of not less than 144 square inches.

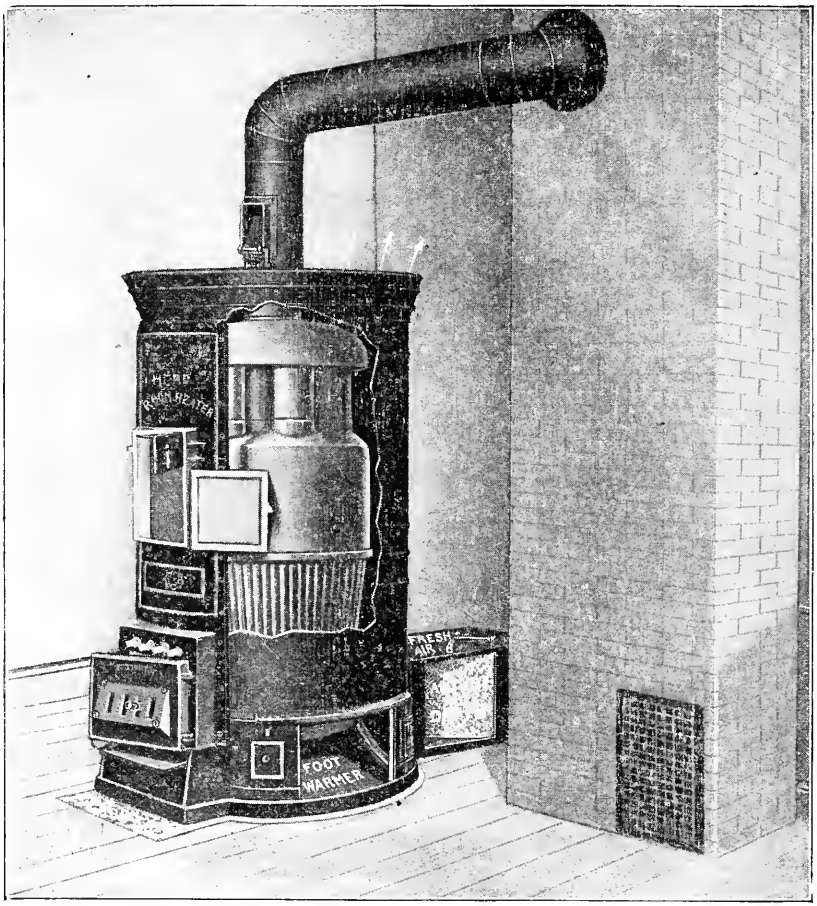
All flues shall start upon substantial foundation at the ground, and shall extend to at least 4 feet above the highest point of the roof of the building. Flues shall be built the same size the entire height, and all walls shall be plumb and true.

The outside walls of all chimneys shall be not less than 8 inches thick."

Few subjects which should engage the attention of school officers are of greater importance than that of hygiene as related to the methods of heating and ventilating. Hygiene treats of the laws of health and seeks to make growth more perfect, deterioration less rapid and death more remote. These ends cannot be served in a poorly heated and ventilated schoolroom. Pure air is an essential to human life. Much of the headache, drowsiness and careless attitude of children in school is caused by a lack of an abundant fresh air supply. School officers and patrons of every community should no longer feel they have done all in their power to provide the children with a healthy environment until they have installed a modern system of heating and ventilating in the schoolroom. By a modern system is meant one in which provision is made for an intake of fresh air and an outlet of foul air. Simply placing a jacket around the stove is not sufficient and will not give satisfaction unless provision is made for the intake and outlet. Jackets should not be installed without the intakes and outlets. We have experimented a long time in this field and have now come to such a knowledge of ventilation that it is possible to have the air in our schoolrooms practically what it should be. With this knowledge at hand and with the means to provide the necessary conditions it is little less than criminal to continue to force innocent children to remain in stuffy rooms where the air is saturated with carbonic acid gas to the point where it is injurious to health.

On January 1, 1914, less than seven per cent of the rural schools of the State were supplied with an adequate system of heating and ventilating, and most of these have been installed during the past two or three years. Reports received at this office from county superintendents at that time show that of the 9,381 distinctly rural schools 651 were supplied with modern systems. By reference to the Table of Modern Systems of Heating and Ventilating in Rural Schools, it will be seen that 39 counties have no

system other than a jacketed stove, and many do not have a single school in the county that can boast of even this.



THE HERO SYSTEM OF HEATING AND VENTILATING.
—Courtesy Charles Smith Co., 57 West Lake St., Chicago.

It is gratifying, however, to note the widespread interest in this important subject, and the time will come when Missouri will take her place alongside other progressive states in this matter.

In the following table it will be noted that in most counties a large number of stoves are provided with a jacket, but no means of ventilation. In computing percentages, these have not been included. In the graph it is seen that St. Louis county has the largest percentage and Stoddard county the smallest percentage—49 per cent and .9 per cent, respectively. Find where your county stands in this list and then urge the patrons to vote the necessary amount to place it by the side of the most progressive counties:

TABLE OF MODERN SYSTEMS OF HEATING AND VENTILATING IN RURAL SCHOOLS.

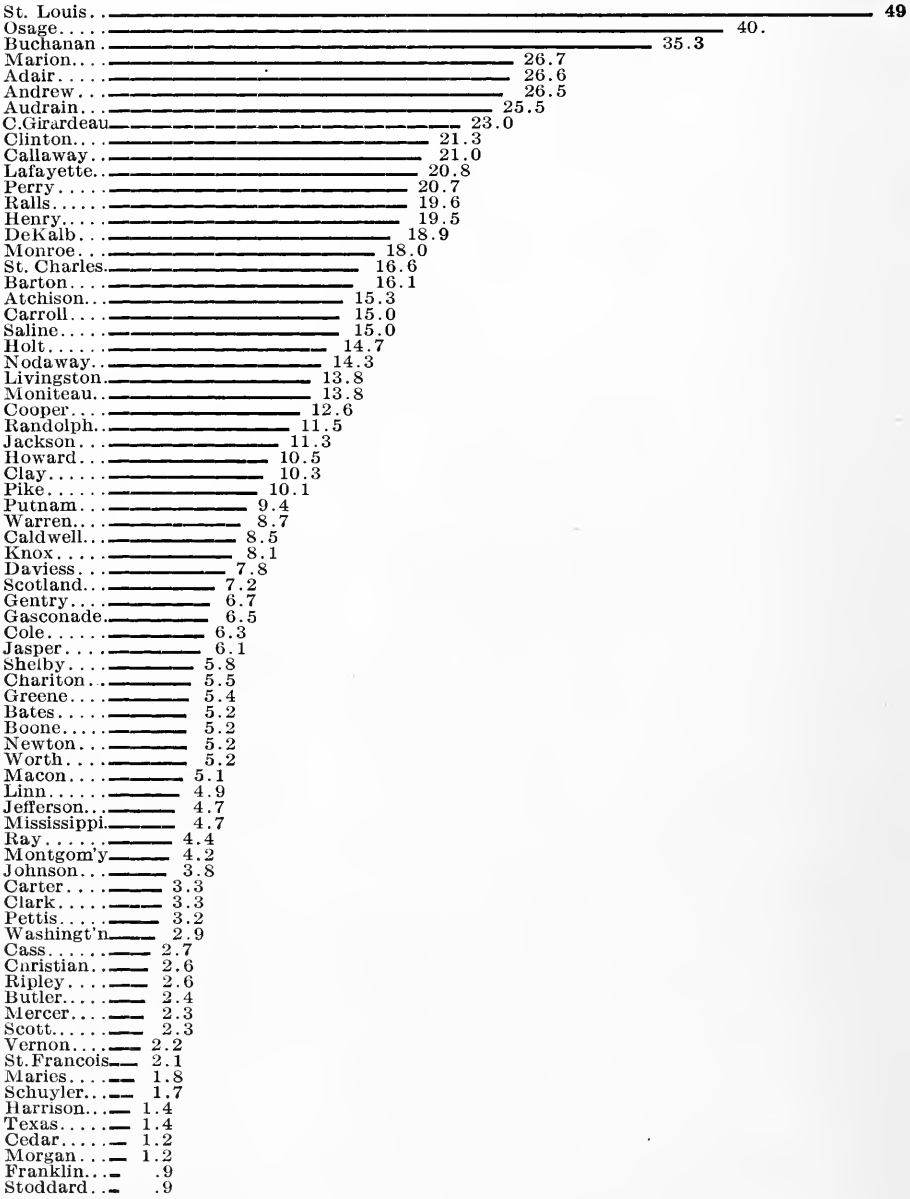
Showing the number of rural schools, number supplied with a modern system, and percentage of schools having such a system in each county.

County.	Number of one and two-room schools in county	Number of modern heating plants	Number of stoves jacketed	Percentage of schools having modern heating plants
Adair	75	20	10	26.6
Andrew	79	21	4	26.5
Atchison	85	12	22	15.3
Audrain	90	23	4	25.5
Barry	110	0	5	.0
Barton	93	15	8	16.1
Bates	133	7	20	5.2
Benton	92	0	4	.0
Bollinger	92	0	0	.0
Boone	96	5	3	5.2
Buchanan	65	23	11	35.3
Butler	81	2	3	2.4
Caldwell	70	6	15	8.5
Callaway	114	24	6	21.0
Camden	83	0	2	.0
*C. Girardeau	74	17	16	23.0
Carroll	120	18	7	15.0
Carter	33	1	2	3.3
Cass	110	3	51	2.7
Cedar	82	1	8	1.2
Chariton	127	7	45	5.5
Christian	76	2	6	2.6
Clark	89	3	68	3.3
Clay	58	6	4	10.3
Clinton	61	13	7	21.3
Cole	47	3	26	6.3
Cooper	87	11	8	12.6
Crawford	82	0	0	.0
Dade	78	0	27	.0
Dallas	80	0	15	.0
Daviess	102	8	5	7.8
DeKalb	74	14	40	18.9
Dent	79	0	0	.0
Douglas	108	0	0	.0
Dunklin	70	0	5	.0
Franklin	111	1	80	.9
Gasconade	61	4	6	6.5
Gentry	89	6	5	6.7
Greene	110	6	40	5.4
Grundy	79	0	15	.0
Harrison	135	2	50	1.4
Henry	97	19	15	19.5
Hickory	58	0	0	.0
Holt	68	10	4	14.7
Howard	57	6	4	10.5
Howell	113	0	12	.0
Iron	44	0	3	.0
Jackson	97	11	20	11.3
Jasper	98	6	15	6.1
Jefferson	84	4	40	4.7
Johnson	130	5	25	3.8
Knox	74	6	2	8.1
Laclede	90	0	3	.0
Lafayette	91	19	48	20.8
Lawrence	91	0	12	.0
Lewis	75	0	3	.0
Lincoln	85	0	3	.0
Linn	101	5	24	4.9
Livingston	94	13	20	13.8
McDonald	66	0	1	.0
Macon	137	7	6	5.1
Madison	50	0	0	.0
Maries	53	1	1	1.8
Marion	56	15	4	26.7
Mercer	86	2	3	2.3
Miller	82	0	8	.0
Mississippi	42	2	10	4.7
Moniteau	72	10	4	13.8
Monroe	94	17	5	18.0
Montgomery	71	3	18	4.2
Morgan	81	1	40	1.2
New Madrid	44	0	20	.0
Newton	95	5	3	5.2
Nodaway	167	24	18	14.3
Oregon	70	0	2	.0
*Osage	70	28	6	40.0
Ozark	85	0	0	.0
Pemiscot	35	0	0	.0
Perry	58	12	2	20.7
Pettis	92	3	11	3.2
Phelps	79	0	0	.0
Pike	78	8	16	10.1
Platte	69	0	5	.0
Polk	106	0	11	.0
Pulaski	61	0	2	.0
Putnam	85	8	3	9.4
Ralls	61	12	20	19.6
Randolph	78	9	20	11.5
Ray	90	4	2	4.4
Reynolds	58	0	0	.0
Ripley	77	2	2	2.6
St. Charles	72	12	6	16.6
St. Clair	106	0	2	.0
St. Francois	46	1	25	2.1
Ste. Genevieve	48	0	10	.0
St. Louis	67	33	30	49.2
Saline	113	17	0	15.0
Schuyler	56	1	0	1.7
Scotland	69	5	5	7.2
Scott	42	1	2	2.3
Shannon	79	0	0	.0
Shelby	69	4	10	5.8
Stoddard	102	1	3	.9
Stone	60	0	0	.0
Sullivan	109	0	10	.0
Taney	73	0	0	.0
Texas	136	2	10	1.4
Vernon	132	3	25	2.2
Warren	57	5	14	8.7
Washington	69	2	6	2.9
Wayne	71	0	4	.0
Webster	80	0	3	.0
Worth	57	3	6	5.2
Wright	93	0	4	.0

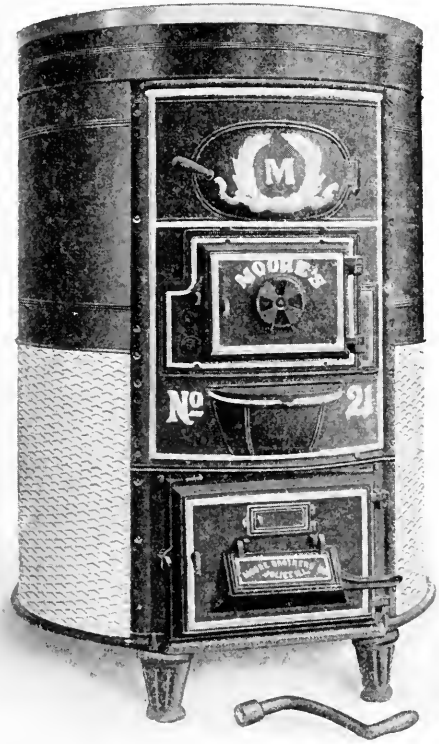
*In Osage and Cape Girardeau counties there are respectively 19 and 17 systems which provide for a fresh air intake and a foul air extractor. These are "homemade" systems but prove quite satisfactory.

GRAPH OF MODERN HEATING AND VENTILATING SYSTEMS IN RURAL SCHOOLS.

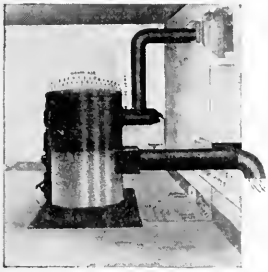
Graph showing the percentage of rural schools that had a modern system of heating and ventilating January 1, 1914.



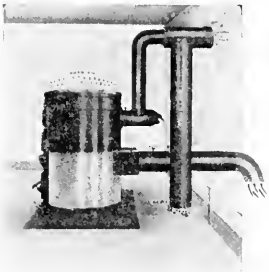
MOORE'S ROOM HEATER:



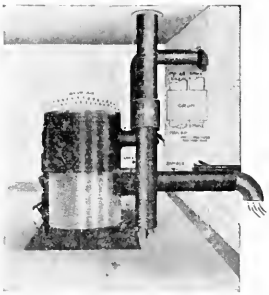
MOORE BROTHERS CO., JOLIET, ILL.



"A" System.

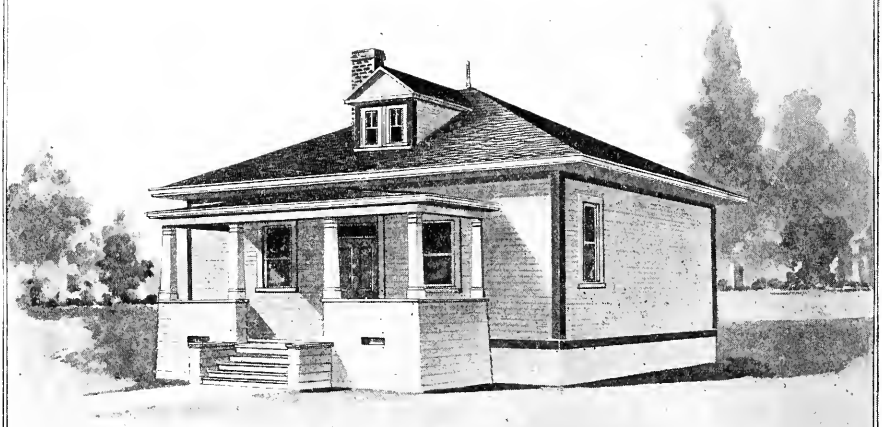


"C" System.

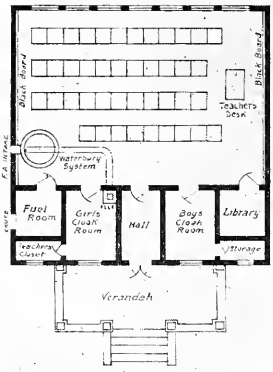


"B" System.

The above four illustrations show Moore's Schoolroom Heater, and the three Moore Ventilating Systems for discharging the foul air from the room and introducing pure fresh air from outside.



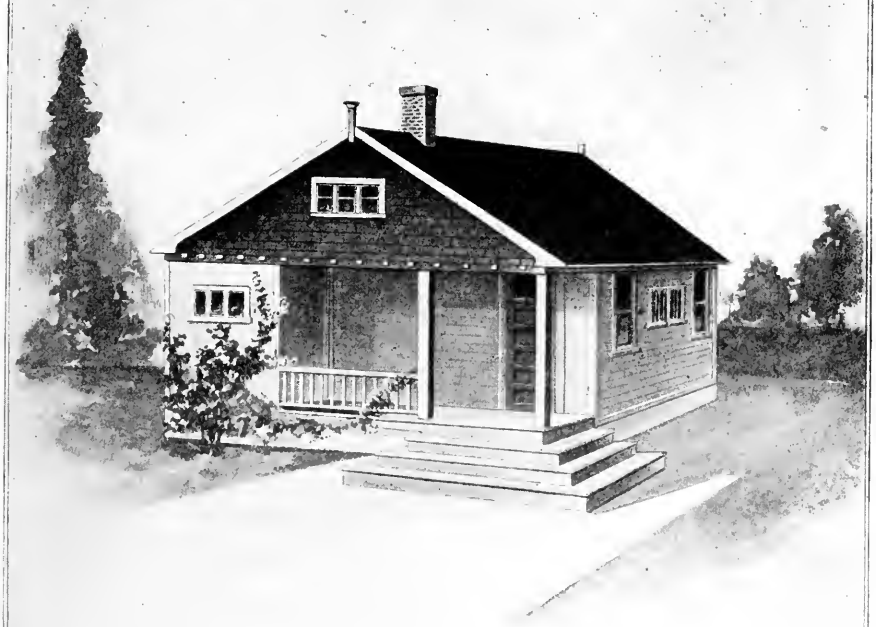
·WATERBURY·
ONE ROOM SCHOOL HOUSE
DESIGN Nº3
THE WATERMAN-WATERBURY CO.
MINNEAPOLIS ~ ~ MINN.



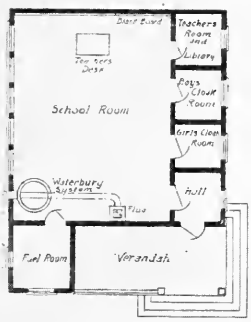
FLOOR PLAN ~ DESIGN Nº3

H.

The above one-room building need not cost more than $1,200, and yet it embodies features that are remarkably good. Note that the building may be modified in three ways so as to provide for east light and for frontage on a main road.



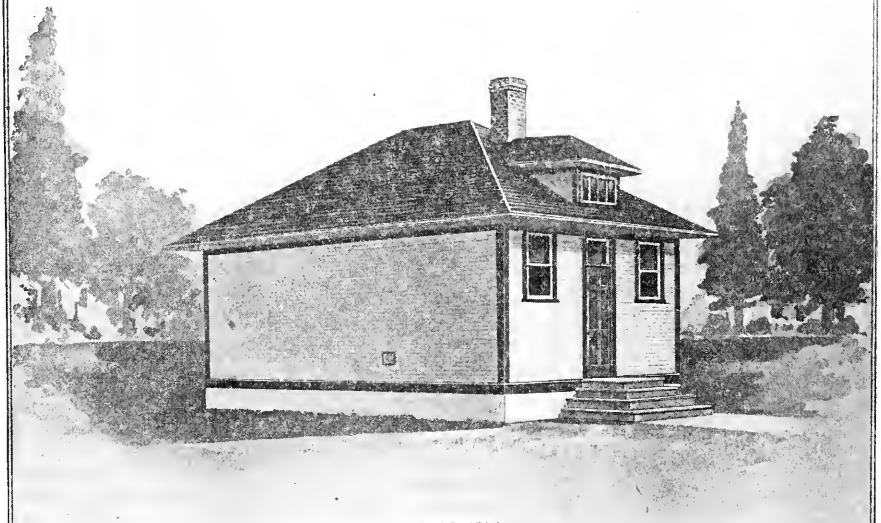
·WATERBURY·
ONE ROOM SCHOOL HOUSE
DESIGN Nº 4
THE WATERMAN-WATERBURY CO.
MINNEAPOLIS. - - MINN.



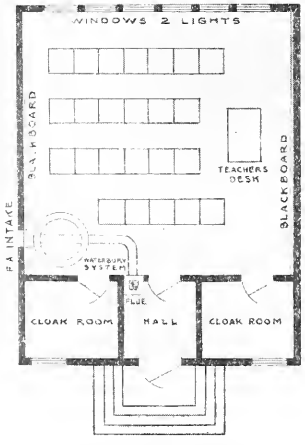
FLOOR PLAN – DESIGN Nº 4

D.

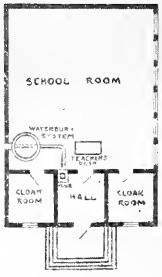
This neat bungalow style schoolhouse is one of a series designed by The Waterman-Waterbury Company.



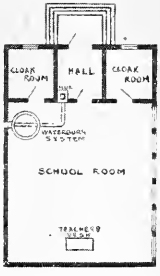
·WATERBURY·
·ONE-ROOM SCHOOL HOUSE·
·DESIGN Nº1·
THE WATERMAN-WATERBURY COMPANY
MINNEAPOLIS - - - MINN.



STANDARD FLOOR PLAN
DESIGN Nº 1



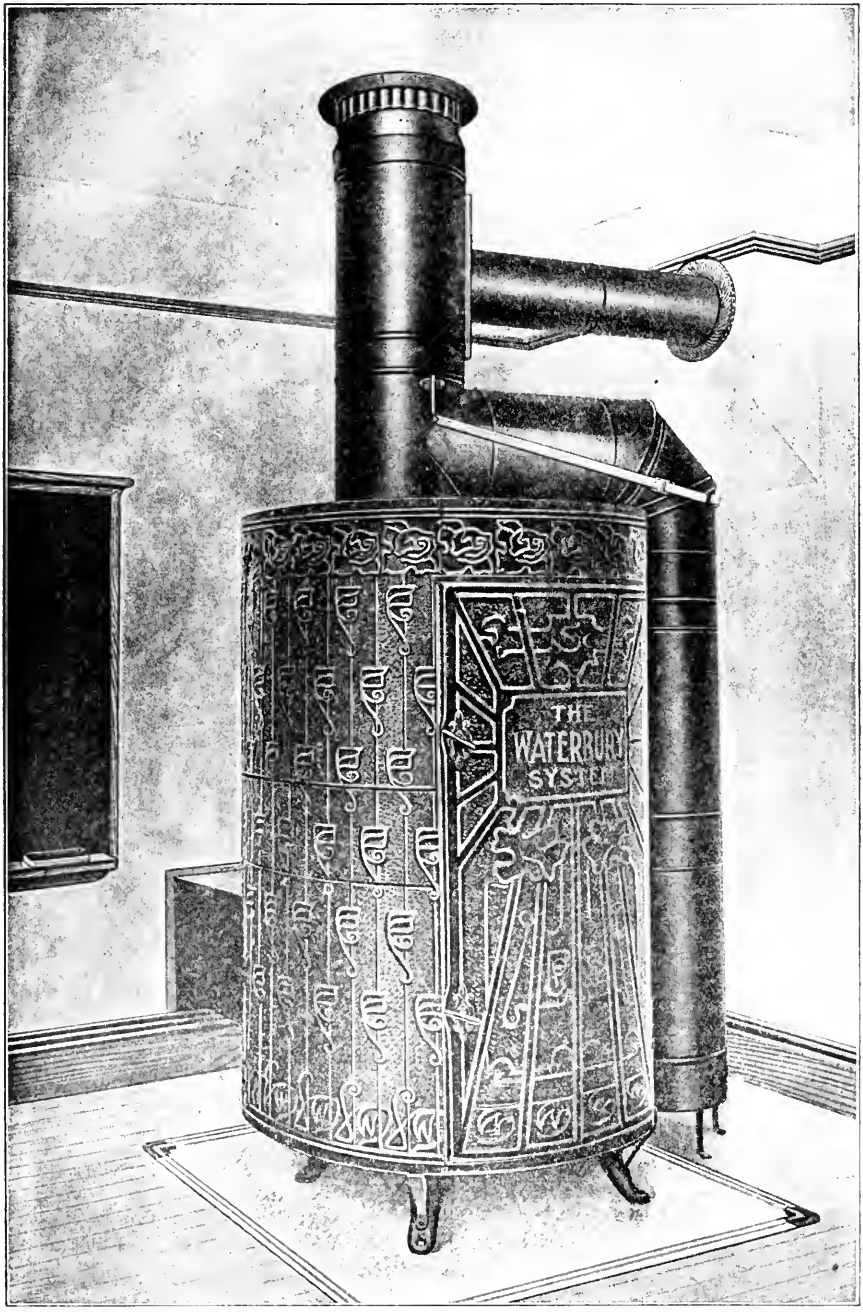
REVISED FLOOR PLAN
DESIGN Nº 1
EAST LIGHT, SOUTH FRONTAGE



REVISED FLOOR PLAN
DESIGN Nº 1
EAST LIGHT, NORTH FRONTAGE

E.

A WATERMAN-WATERBURY BUILDING PLAN.



The Waterbury System. Style C. illustrated above, is for use in buildings having ordinary 8″x8″ or 8″x12″ shelf chimneys that have not given smoke trouble with a common stove.

Water Supply.

Great care should be used in providing plenty of pure water. Every possible source of contamination should be carefully guarded; the source of water supply ought to be at least 100 feet from any privy or cesspool. The top of the well or cistern should be provided with a close-fitting cement top, so that it would be impossible for rabbits, rats, mice or filth to enter. Water is one of the best known agents in the transmission of disease germs, and many cases of sickness and even death are due to the fact that school boards have neglected to provide pure water. The water from open wells or springs should not be used, and frequent tests should be made to see that the water is free from all contamination. A simple test for organic impurities is made by placing water in a bottle, which has been thoroughly cleansed by boiling, and corking it up airtight and allowing it to remain for two days. On removing the cork, if any odor can be detected the water is unfit for drinking purposes and should be further investigated immediately.

Cistern water becomes stagnant during vacation. Before school opens this water should be tested. If it is merely stagnant, it should be thoroughly stirred up so as to absorb the atmosphere. If the water is polluted it should be drawn out, the cistern thoroughly washed and a fresh supply of pure water hauled and put in. Permanganate of potassium destroys organic matter, precipitating as manganate of potassium in the bottom of the cistern. One ounce is sufficient for the average-sized cistern. This prescription is cheap, effective and absolutely harmless. A few cents worth will be sufficient to make the water sweet and pure. A few days before school opens a member of the board should purchase an ounce of permanganate of potassium, dissolve it in a bucket of water, and then put it into the cistern and stir the water thoroughly with a pole, or pump out and pour back several times. This will make the water quite wholesome and ready for use. This precaution should not be neglected.

Silver Nitrate Test for Purity of Water.

Into a test tube two-thirds full of water to be tested, put a small crystal of silver nitrate ($Ag\ No_3$).

If the water turns to a milky white it indicates the presence of a chloride or a carbonate.

Add a few drops of nitric acid ($H\ No_3$) to the milky solution. If the water remains cloudy it is unsafe and should not be used for drinking purposes.

Drinking Fountains.

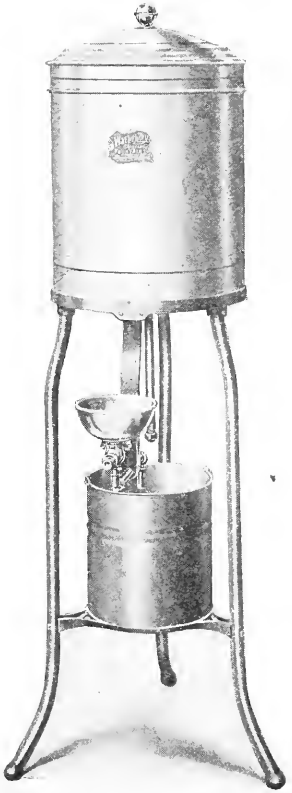
The time has come in our State when the open bucket and common drinking cup should no longer be tolerated. In the light of modern science no school board or teacher can be excused for permitting this menace to public health to longer remain. This department does not undertake to prescribe any particular brand or system of drinking fountain. Several types of bubbling fountains, used in connection with ordinary covered water jars or coolers, have been devised for use in schools where a water system is not installed. All of these types are more or less satisfactory and the cost is a mere trifle when compared with the saving in doctor bills. The county superintendent will be glad to furnish information about prices and kinds of fountains best suited to local needs.

DRINKING FOUNTAINS.

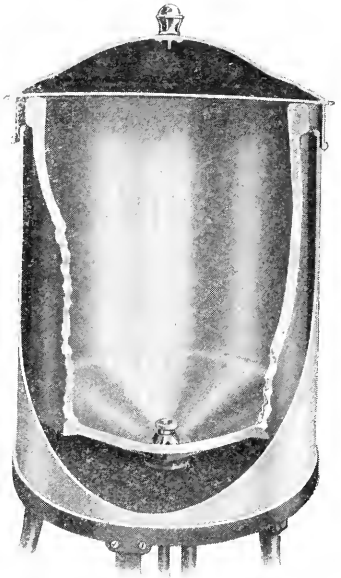
A practical and inexpensive method of providing a pure water supply. Particularly adapted for village and country schools, offices and churches where a system of waterworks is not installed or the city water is not fit for drinking.

B (a)

The problem of dispensing drinking water in schools not having a waterworks system is solved very happily by the Waterbury Sanitary Fountain.

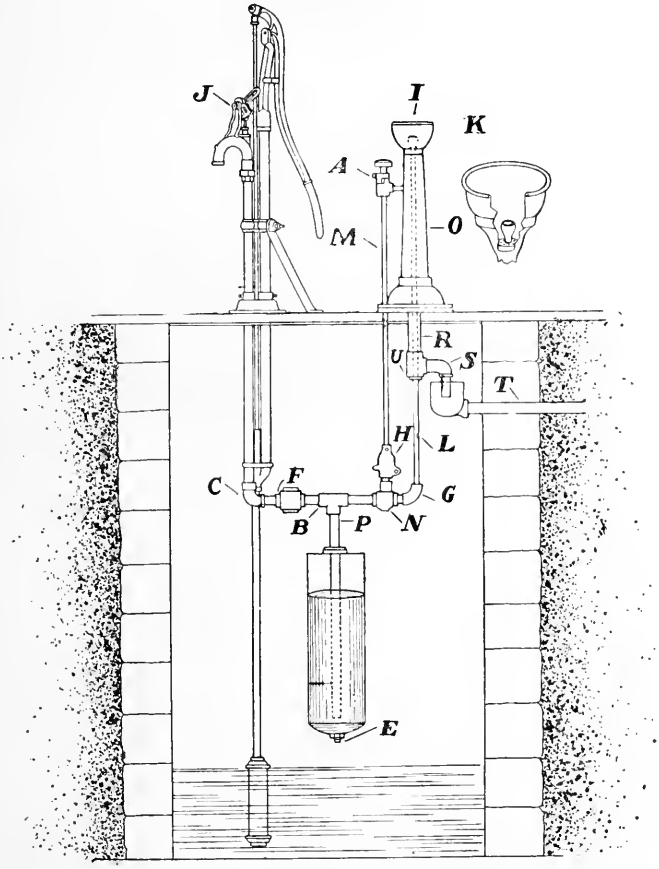


B (b)



B (c)

The best way to solve the problem of water supply and drinking fountains is to install a permanent system at the outset and then you have a satisfactory solution for years to come. Sink an air-tight pressure tank below the frost line and connect it with a force pump by a one and one-fourth inch galvanized iron pipe. This pipe must also be laid lower than freezing point. From the pressure tank run a three-fourths inch supply pipe to each fixture or bubbling fountain in the schoolroom. Provision must be made to shut off the supply when necessary and to drain the pipes above the ground to prevent freezing in winter.



—Courtesy of Linn-McCabe Co., Casey, Ill.

To get a drink of water the child turns the little handwheel at the side of the bowl, which opens the valve below. The compressed air in the tank forces the water to bubble up through the bubbling cup, making it an easy matter to drink without the lips coming into contact with any metal whatever. When the child lets

go of the handwheel the valve closes and the flow of water stops and the feed pipe at once drains itself through the leak hole "L," thus preventing freezing in the coldest weather. The waste water falls into the waste bowl, and is carried down the waste pipe below the platform where it empties into drain pipe.

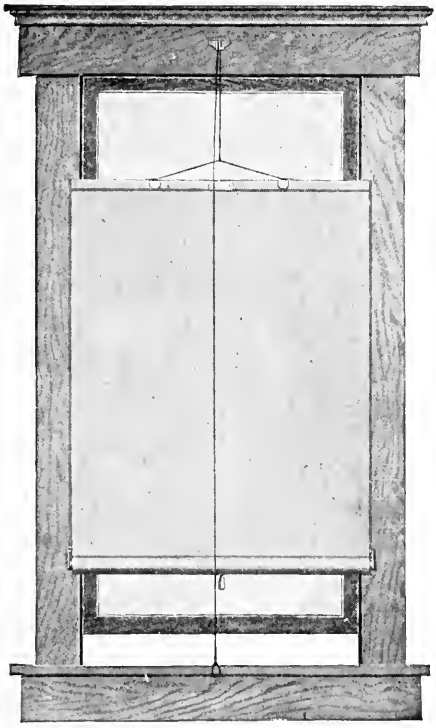
The next child to drink gets an absolutely fresh supply of water. It makes no difference if the first drinker has typhoid or diphtheria germs on his lips, the second drinker is as secure from contamination as though he drank from an entirely different well.

—Courtesy of Linn-McCabe Co., Casey, Ill.

Lighting.

In providing the necessary equipment for the school, the importance of proper lighting should by no means be overlooked.

In constructing new buildings only unilateral or one-side lighting should exist. Scientific and practical demonstrations prove that cross light or that obtained by having windows on opposite sides of the room is injurious to the eyes and should be avoided. Light coming from windows placed close together on the left side and also from high windows in the rear of the pupils, as shown in the Felt plan for a one-room school, is very satisfactory. Where light is from the north the glass area should be one-fourth of the floor area. North light is the poorest light for a schoolroom. East light is the best, west light second best and south light third best.



The adjustable shade should be purchased, it lasts longer, gives better satisfaction in every respect.

—Courtesy of L. O. Draper Shade Co., Spiceland, Ind.

Many rooms are not provided with window shades and the light is allowed to enter unrestricted, often shining directly on the desk and book of the pupil, producing an injurious effect upon the pupil's eyes. The remedy, of course, is the window shade, of which there is a variety; however none but the best adjustable type should be used. The initial cost of the adjustable shade is a trifle more than the ordinary shade, but the results obtained are much better, and the shade is more durable.

It is a well-known fact that the color of the walls and the amount of blackboard space determine the amount of light needed. Glaring white walls should not be permitted, because of the bad effect on the eyes.

Color Scheme for Walls.

Much effort has been made to secure a satisfactory system of color scheme for the walls of a schoolroom, and possibly the most satisfactory suggestions offered are those given by a committee of

expert oculists of New York to the school board of that city. The report says the lower portions of the room should be a light brown, the walls should be a light buff tint or a light gray and the ceiling an ivory white. Experiments show the effect of the combination of these tints to be restful and cheerful.

The furniture and window and door frames should be plain to prevent the accumulation of dust. Light colored wood with natural finish and dull surface should be used.

Outbuildings.

It would be difficult to exaggerate the filthy conditions which exist in connection with outbuildings of rural schools in this State, and steps should have been taken long ago to remedy this glaring evil. Indoor sanitary toilets have been devised which, when treated properly, prove quite satisfactory even where a water system is not possible. The following regulations have been issued by the Indiana State Board of Health and have the force of law. Our State Board of Health should be empowered to enforce similar rules and regulations in this State:

Toilets.

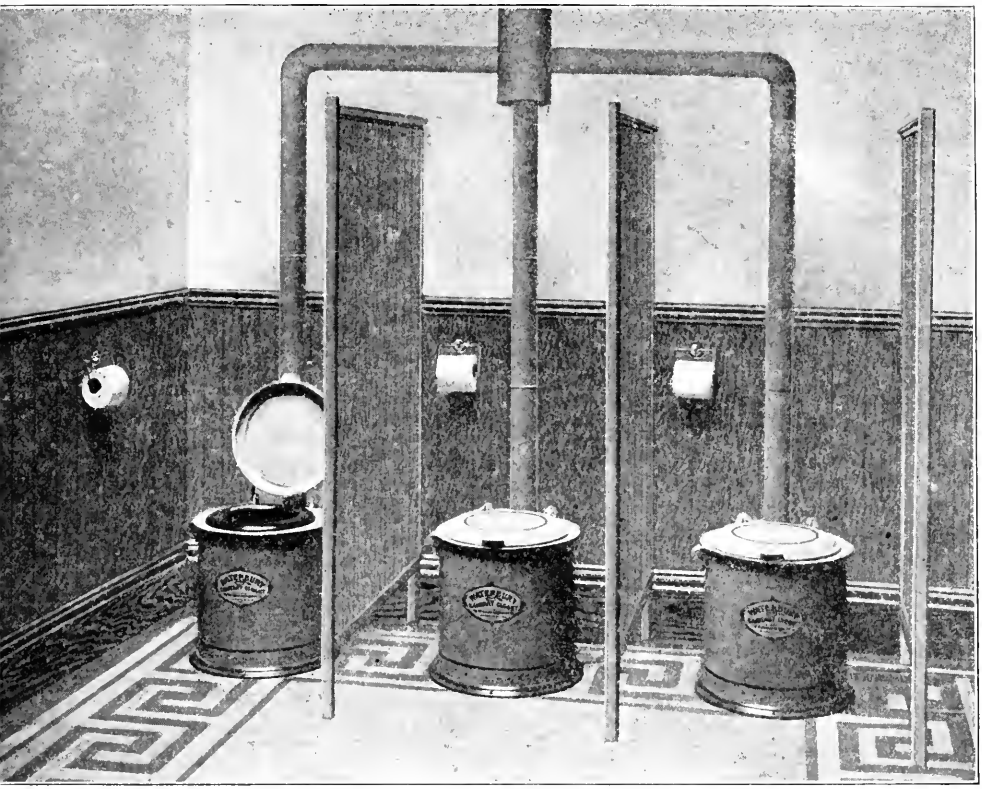
"Where a sewer system or pressure water supply is available or practicable, water-closets to the number of 1 seat for each 15 females or fractional part thereof, 1 seat for each 25 males or fractional part thereof, and 1 urinal for each 15 males or fractional part thereof, shall be installed. In estimating the number of closets to be installed, the occupants shall be divided as follows: 40 per cent males and 60 per cent females. Where the syphon type of closet is used, it shall be provided with seat-action flush, with working parts of sufficient strength to withstand rough usage. Closets having any working parts of valve or any metal parts inside of bowl shall not be used.

All closets shall be equipped with wooden seat tops and lids. Long hopper water-closets and similar appliances shall not hereafter be installed in any school building. All urinals shall be constructed of materials impervious to moisture and that will not corrode, and shall be divided into stalls not less than 16 inches nor more than 20 inches in width.

When closets are located in the basement, they shall be separated as to sexes by solid, sound-proof wall and shall be approached by separate stairways. Boys' toilet rooms shall be clearly marked "Boys Toilet," and girls' toilet rooms shall be clearly marked "Girls Toilet."

Indoor Crematory Closets.

"Whenever a sewer system or pressure water supply is not available or practicable, either an indoor crematory sanitary closet system or outdoor sanitary closets shall be provided to the same number as specified for water-closets. If an indoor crematory sanitary closet system is used, the vault of same shall be constructed of brick, with cement floor, properly drained. The vault heater, gratings, floors, and stools shall be made of cast iron. The urinals shall be constructed either of enameled iron, slate, marble, or glass, and shall be ventilated both at top and bottom. The seat shall be made either of wood or aluminum, and if wood seats are used, the underside of same shall be lined with metal. The lids of the seats shall be provided with a self-closing device. Such closets shall be connected to a vent flue or stack with a free cross-



F.

A battery of Waterbury Sanitary Closets installed in a school toilet room. Any vacant space, sufficiently private, in an old building may be sectioned off for the purpose.

sectional area of not less than 60 square inches for each seat and each stall of urinal, to which stack shall be connected a stack heater. Fire must be kept in both the stack heater and the vault heater at all times when the school is in session, in order to maintain a positive updraft in the stack and to destroy the contents of the vault.

So-called dry closets shall not hereafter be used in any school building."

Outdoor Sanitary Closets.

"If an outdoor sanitary closet system is used, the vault receptacle and floor of such closet shall be of cement construction. Dry loamy earth, wood ashes, sifted coal ashes, or slacked lime shall be thrown in the vault receptacle at least once each day when school is in session, and the contents of the vault shall be removed at least twice in each school year. All outdoor closets shall be kept effectually screened and protected against flies. The interior walls of such closets shall be sided with corrugated metal sheathing, painted a drab color, and sanded while the paint is still wet.

In the boys' closet a urinal of metal, cement, or other nonabsorbent material with stalls shall be constructed and made to discharge through a proper drain into the soil away from the closet and not nearer than 100 feet to any source of water supply."

Approved Rural Schools.

What has shown itself an important factor in the improvement of the rural schools is the method by which they are classified and approved. This plan, which is similar in many respects to that used in other states, has been in operation since 1909 and is now becoming quite generally known and understood by the teachers. It is presented here in the hope that more school officers will get a better understanding of what it means and then set about to see that the school under their charge is put in a condition to merit approval.

The purpose of the plan is to improve the school by setting up a standard which is more or less easily attained by exerting a little effort. The standard is made up of the most vital points which should characterize a good school anywhere. The county superintendent, or the rural school inspector, will visit the school and note the condition of the building, apparatus and equipment, grounds and outbuildings, organization and qualifications of the teacher, and when the essentials of a good school are found to exist the State Superintendent will issue a certificate of approval designating it as an approved school. It is not the purpose of the inspection to make adverse criticism, but to assist the teacher and board in finding out what the schools lack and to assist in supplying the need or at least pointing it out. There are certain fundamental things which we are agreed should be considered in fixing any sort of standard which a good school should meet.

A set of requirements has, therefore, been worked out, and these requirements are stated here with the hope that school officers will use them as a test to see wherein the school in their charge is lacking.

When the following requirements are met the school will receive the certificate:

1. The term must be at least eight months in length.

It is impossible to accomplish the amount of work outlined in less time—hence the term should be eight months.

2. The teacher must hold a certificate higher than a third grade county.

In general, the best teachers will not be satisfied with a third grade certificate, and it is important that the work in an approved school be efficient in every way.

3. The salary paid the teacher must be at least forty-five dollars per month.

A school may receive State aid and pay a teacher holding a second grade certificate forty-five dollars per month—hence this price is made as a minimum.

4. The board must have complied with the library law.

Section 8186, R. S. 1901, provides that it shall be the duty of the board to set aside out of the incidental fund a sum equal to at least five cents per pupil enumerated and not more than twenty cents per pupil for the purchase of library books each year.

The efficiency of a school is greatly increased by the use of a well selected library, and boards should set aside an ample sum of money each year for the purchase of suitable books.

5. The State Course of Study must be followed.

The day of haphazard work is past. The State Course of Study has ample material well organized and arranged in such a way that it can be followed as a guide by any live teacher with much profit. Boards should insist that the teacher make use of this wealth of valuable and suggestive material.

6. The school must be well organized and classified.

The State Course of Study plans the work in such a way that classes may be alternated and combined, to the end that more time may be given classes and better results obtained.

7. The instruction and discipline must be satisfactory.

The teacher must give evidence of training and scholarship and a reasonable degree of proficiency in teaching and management.

8. The school buildings, grounds and outbuildings must be adequate, cleanly and sanitary.

The room should be properly lighted, heated and ventilated, window shades should be provided for all windows, outbuildings should be screened and vines planted where they will cover the screen. An abundant supply of pure water should be provided on the school ground.

9. The room must be heated by other means than radiation.

The minimum of this requirement is that the stove must be provided with a jacket. This is of little value unless a fresh air intake and foul air outlet is also provided. It is now time that an approved school should be supplied with a modern system of heating and ventilating.

10. The teacher must be a regular attendant at county and township meetings.

A progressive teacher will accept all means for professional growth and development and this is one of the best evidences of a live teacher—that he attend these meetings and do the reading circle work.

11. A satisfactory program must be posted conspicuously.

A school without a definite program would be like a railroad system without a time-table, nothing but confusion and chaos can possibly result from such a plan. To do the best work and to train pupils in habits of punctuality require the teacher to have a program and follow it.

12. The library must contain at least 100 volumes bound in boards suitable for carrying out the State Course of Study. (Including sets of supplementary readers, not less than five books to the set.)

This requirement means that the library must have at least 100 volumes, and No. 4 requires that new books must be added annually. There must be at least four sets of supplementary readers, such, for example, as a third reader, and there must be five of the same kind in that set. This material includes story books, history stories, nature study, geographical readers and literary selections.

13. The library must contain at least fifty agricultural bulletins.

These may be obtained free from the College of Agriculture at Columbia, Mo., and the Department of Agriculture at Washington, D. C., and should be selected with a view to carrying out the work in agriculture in the local district. For example, in the south bulletins on cotton growing will be valuable, while in the north those on corn, cattle, hogs, etc., will serve the needs of the community better.

14. A total credit of 80 points out of a possible 100 must be earned.

Some states offer state aid to their standard rural schools. Ohio gives a special aid of fifty dollars annually to her standard rural schools.

While it is true that any school which meets all of the above conditions will do better work and the pupils are receiving superior advantages, yet it is suggested that the Legislature recognize the efforts of these people and offer a bonus of, say twenty dollars a year, to each of these schools—this money to be used in the purchase of new books for the library or for apparatus necessary to teach agriculture.

Apparatus for Teaching Agriculture in Rural Schools.

Since the law requires agriculture to be taught in the public schools in this State, it is necessary that each schoolroom be provided with some simple apparatus with which experiments may be performed. Much of this may be collected by the teacher and pupils in the community, but some of it should be purchased by the school board. The first thing needed is a well-made cabinet with lock and key in which the material may be kept at all times when not in use. The following apparatus should be found in each rural school:

One square, three yardsticks, twelve foot rulers, one meter stick, one spring balance, one set of scales, three bread pans, six quart jars, six pint jars, six lamp chimneys (No. 2), six glass tubes (different sizes), several small boxes for seed testing, boxes containing different kinds of soil, as clay, loam, sand, leaf mold, etc., one Babcock milk tester, one handsaw, hammer, test tubes, alcohol lamp, set of tin measures, three tripod lenses, two thermometers.

Most of this apparatus may be purchased at the local stores or gathered from the homes of the district. A work table, at least 3x6 feet, should be provided, and pupils should be required to make experiments and observations and keep complete and accurate notes on them. Much of the above apparatus will be of use in classes in arithmetic.

Some of the Advantages of an Approved School are as Follows:

1. Better qualified teachers.
2. Longer terms and hence more public funds.
3. Better libraries and other essential equipment.
4. Better sanitary conditions for the promotion of health and comfort among the pupils.
5. Greater inspiration to the patrons to be content only with the best.
6. Better teaching and general school work.

Special Concession to Approved Rural Schools.

Teachers in approved rural schools conduct their own examinations and grade their own papers and their pupils are given common school diplomas on the recommendation of the teacher. In all other schools the examination papers for graduation from the rural schools must be read by the county superintendent or a committee appointed by him. This concession confers a special honor and privilege on the approved rural school.

TABLE OF APPROVED RURAL SCHOOLS.

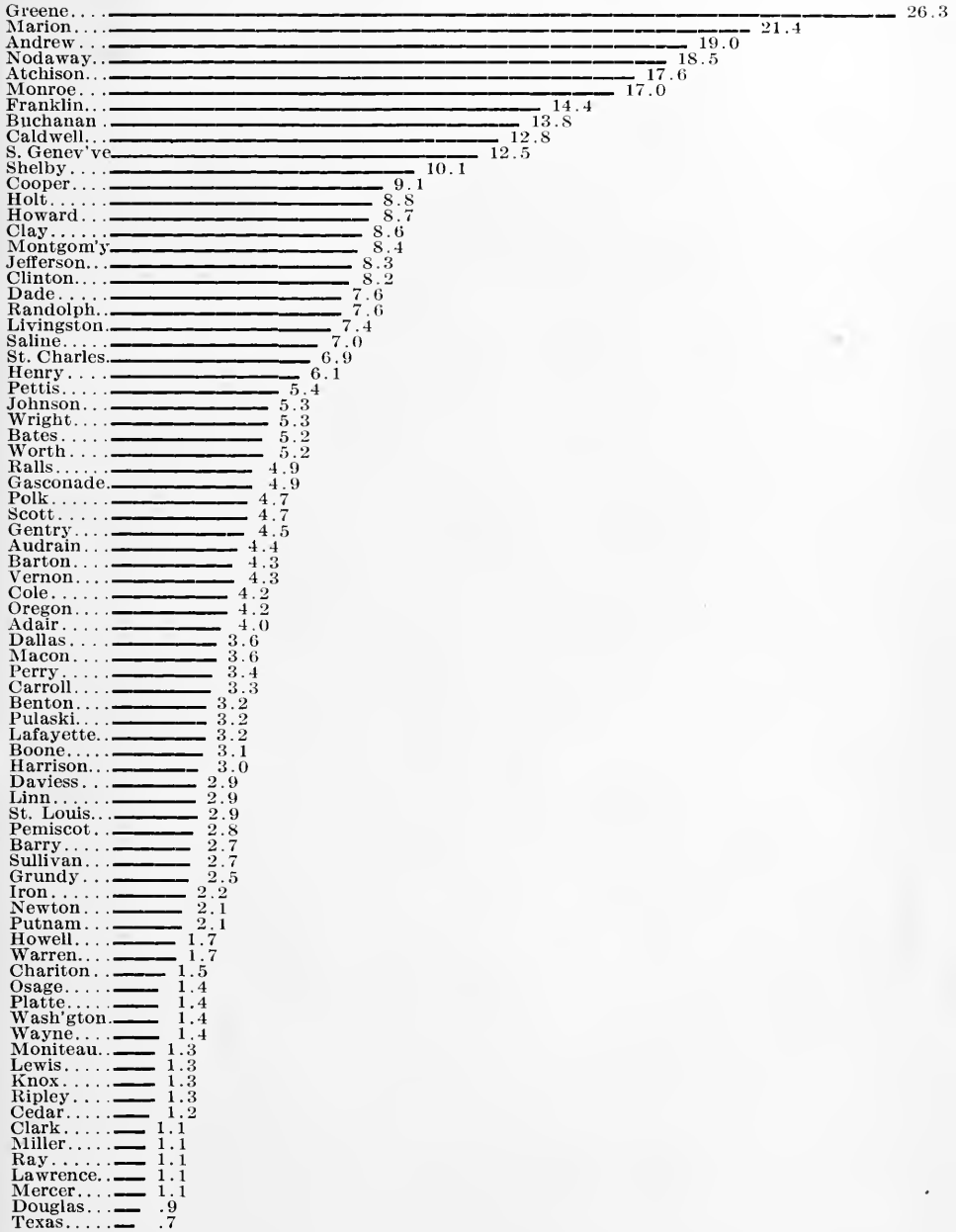
Showing the number of rural schools, number of approved schools and percentage of approved schools in each county January 1, 1914.

County.	Number of schools in county.	Number of approved schools.	Percentage of approved schools in county.	County.	Number of schools in county.	Number of approved schools.	Percentage of approved schools in county.
Adair	75	3	4.0	Linn	101	3	2.9
Andrew	79	15	19.0	Livingston	94	7	7.4
Atchison	85	15	17.6	McDonald	66	0	.0
Audrain	90	4	4.4	Macon	137	5	3.6
Barry	110	3	2.7	Madison	50	0	.0
Barton	93	4	4.3	Maries	53	0	.0
Bates	133	7	5.2	Marion	56	12	21.4
Benton	92	3	3.2	Mercer	86	1	1.0
Bollinger	92	0	.0	Miller	82	1	1.1
Boone	96	3	3.1	Mississippi	42	0	.0
Buchanan	65	9	13.8	Moniteau	72	1	1.3
Butler	81	0	.0	Monroe	94	16	17.0
Caldwell	70	9	12.8	Montgomery	71	6	8.4
Callaway	114	0	.0	Morgan	81	0	.0
Camden	83	0	.0	New Madrid	44	0	.0
Cape Girardeau	74	0	.0	Newton	95	2	2.1
Carroll	120	4	3.3	Nodaway	167	31	18.5
Carter	33	0	.0	Oregon	70	3	4.2
Cass	110	0	.0	Osage	70	1	1.4
Cedar	82	1	1.2	Ozark	85	0	.0
Chariton	127	2	1.5	Pemiscot	35	1	2.8
Christian	76	0	.0	Perry	58	2	3.4
Clark	89	1	1.1	Pettis	92	5	5.4
Clay	58	5	8.6	Phelps	79	0	.0
Clinton	61	5	8.2	Pike	78	0	.0
Cole	47	2	4.2	Platte	69	1	1.4
Cooper	87	8	9.1	Polk	106	5	4.7
Crawford	82	0	.0	Pulaski	61	2	3.2
Dade	78	6	7.6	Putnam	85	2	2.1
Dallas	80	3	3.6	Ralls	61	3	4.9
Daviess	102	3	2.9	Randolph	78	6	7.6
DeKalb	74	0	.0	Ray	90	1	1.1
Dent	79	0	.0	Reynolds	58	0	.0
Douglas	108	1	.9	Ripley	77	1	1.3
Dunklin	70	0	.0	St. Charles	72	5	6.9
Franklin	111	16	14.4	St. Clair	106	0	.0
Gasconade	61	3	4.9	St. Francois	46	0	.0
Gentry	89	4	4.5	Ste. Genevieve	48	6	12.5
Greene	110	29	26.3	St. Louis	67	2	2.9
Grundy	79	2	2.5	Saline	113	8	7.0
Harrison	135	4	3.0	Schuyler	56	0	.0
Henry	97	6	6.1	Scotland	69	0	.0
Hickory	58	0	.0	Scott	42	2	4.7
Holt	68	6	8.8	Shannon	79	0	.0
Howard	57	5	8.7	Shelby	69	7	10.1
Howell	113	2	1.7	Stoddard	102	0	.0
Iron	44	1	2.2	Stone	60	0	.0
Jackson	97	0	.0	Sullivan	109	3	2.7
Jasper	98	0	.0	Taney	73	0	.0
Jefferson	84	7	8.3	Texas	136	1	.7
Johnson	130	7	5.3	Vernon	132	6	4.3
Knox	74	1	1.3	Warren	57	1	1.7
Laclede	90	0	.0	Washington	69	1	1.4
Lafayette	91	3	3.2	Wayne	71	1	1.4
Lawrence	91	1	1.1	Webster	80	0	.0
Lewis	75	1	1.3	Worth	57	3	5.2
Lincoln	85	0	.0	Wright	93	5	5.3

Total number of approved rural schools, 383.
Percentage of rural schools approved, 4.1%.
Number of counties having approved rural schools, 78.

GRAPH OF APPROVED RURAL SCHOOLS.

Graph showing the percentage of rural schools that have been inspected since July 1, 1913, and approved in counties having approved rural schools.



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